

Original Correspondence.

THE HEMATITE IRON COMPANY, AND GOVERNMENT INSPECTORS.

SIR,—I observed the communication in the Journal of Feb. 28, and the letter of the directors of the Hematite Company in your paper of the 7th inst., but as documents and correspondence relative thereto are now before the Secretary of State, it may be as well to delay opinions until the whole appears in an official form. MATTHIAS DUNN, Inspector.

Newcastle-on-Tyne.

THE GOVERNMENT MINE INSPECTOR, AND THE WHITEHAVEN HEMATITE IRON COMPANY.

SIR,—The *Colliery Guardian* of the 7th inst. contains an article under the head of "Zeal Without Discretion," animadverting somewhat severely, and, if I am not mistaken, very unfairly also, on the conduct of Mr. Dunn, one of the Inspectors of Mines, in the recent prosecution under the Mines Inspection Act at Whitehaven. It may appear to the public generally, that in permitting two discharged servants of the defendants to accompany him for the purpose of inspecting the mine, Mr. Dunn acted indiscreetly, until it is informed that the practice of colliers being taken by the viewers even to inspect places they had condemned as dangerous has hitherto in some measure been adopted in the North of England, but in other counties I believe such things are seldom or never done. From the fact of the case occupying nearly two days, it is clear that it was a remarkable struggle, in which if the evidence for the prosecution was not sufficiently strong to secure a victory, there can be no doubt that there was more than sufficient for the defence. Mr. Thomas Emerson Forster, whose evidence was supported by several other gentlemen, informed the Bench that he had examined the mine on the 18th of last December; and again a few days prior to the day of hearing, and on both occasions no gas could be found in the workings, and that there was efficient ventilation throughout. Between those visits made by Mr. Forster, when the mine was found so free from fire-damp, Mr. Dunn and Mr. Atkinson, in their official capacity, inspected, I suppose, the same mine and the same working places, though that was not, I believe, clearly elicited, when they found, not only an accumulation of gas, but strong grounds of complaint in respect of the inefficient provisions for the safety of the men in the event of a casualty occurring below. Now, most persons who read the published account of those proceedings, will easily believe that although Mr. Forster could find no gas in the mine on the two distinct and different days mentioned by him in evidence, it might appear on the day Mr. Dunn and Mr. Atkinson were there. Mr. Forster's first visit being made on the part of the lessor, preparations might be made to receive him, and when a second visit was made to the mine it would be, no doubt, to rebut the evidence of the two Inspectors, after the ventilation had been improved; but, apart from that, in a mine wherein the ventilation is all but balanced, a change of atmosphere will quickly produce a marked and an important alteration in remote workings underground, and as gas, if any be emitted, may on such occasions be found in those places lurking up to the roof of the mine, and on the edge of the goaf, and sometimes in the return air-course adjoining thereto, it appears to me that if it be possible to reconcile in any way evidence differing so much as that under consideration differs, some such change must have taken place.

For the prosecution, the presence of gas on the workings on a certain day was fully proved, and not even denied for the defence; but was admitted as a trifling and inconsiderate volume, which one of the witnesses, Mr. Foster, I believe, said he would "have fired to have got rid of it." At this point the case should have been closed; it seems then to have been fully proved; but another opinion prevailed, and by some astute mode of dealing with the facts, that undefined phrase in the first general rule of the Act, "under ordinary circumstances," was placed in bold relief before the Bench. But the Bench, it seems, barely understood whether, under "ordinary circumstances," the mine was well ventilated, it being the ordinary and usual custom of the district to have gas constantly in the working places of a mine, or whether the gas found there was the result of some extraordinary event. If the evidence of an Inspector of Mines, who, after an examination, in *propria persona*, of the mine, and alone, is neither to be allowed to establish the fact, if he should happen to find the Act violated, nor be permitted to accept the aid of an assistant to support his evidence, unless the person so employed be an Inspector of Mines under Government, how or by what means is the law to be enforced? Does not this show not only a lamentable omission somewhere, but suggests a remedy? The nearest colleague may be hundreds of miles away—and if the evidence of the men were called for, durst they, in a case like this, give it; would it be believed if given in support of a prosecution against their employers; or are they, in a majority of cases, able to understand the nature of the enquiry into which they may be drawn? How, then, is an Inspector to act, when placed in a position similar to that in which Mr. Dunn has been, contending against clever and determined men? No one more freely admits the talent and experience of Mr. Forster than I do. But I deny that he possesses in any degree superior ability to the two gentlemen he was brought forward to confront and oppose, and although this opinion had been previously formed, it has been very much strengthened and confirmed by that portion of his evidence wherein he told the Bench in open court, which was crowded, no doubt, with persons more or less connected with mining, and in the presence, perhaps, of many of the working colliers of the district, who sooner or later may try the experiment of firing gas when it happens to interfere with their work or with the use of candle-lights, where lamps only should be used, and in places, too, where it may be attended with risk which they, from want of skill, may not be able to foresee—that he would have fired the gas to get rid of it.

COAL WORKING IN SOUTH WALES.

SIR,—The following gives a return of the seams of coal worked successfully in this district on the long wall system:—

Yard coal, or the Aberdare 2 ft. 9 in. Top, tolerable.	Good coal	3 ft. 0 in.
	Clod	0 ft. 4 in.
	Good coal	0 ft. 7 in.
	Rashes	1 ft. 5 in.
	Strong fire-clay	0 ft. 10 in.
4 ft. seam; identical with Aberdare 4 ft. Top, very bad.	Clod	0 ft. 4 in.
	Ironstone	0 ft. 6 in.
	Clod	2 ft. 2 in.
	Coal	2 ft. 6 in.
	Clod	0 ft. 6 in.
	Coal	3 ft. 6 in.
	Shale	0 ft. 5 in.
	Coal	2 ft. 6 in.
	Clod	1 ft. 10 in.
	Coal	1 ft. 2 in.
	Coal	1 ft. 9 in.
	Clod	0 ft. 10 in.
	Coal	1 ft. 6 in.
	Clod	0 ft. 7 in.
	Coal	3 ft. 0 in.
	Clod	1 ft. 0 in.
	Coal	1 ft. 0 in.
	Clod	0 ft. 1 in.
	Coal	1 ft. 0 in.
	Coal	3 ft. 0 in.
	Clod (holing)	0 ft. 4 in.
The 5½ ft. coal, sometimes called "the two coals." Top, fair.	Clod	1 ft. 0 in.
	Coal	1 ft. 0 in.
	Clod	0 ft. 1 in.
	Coal	1 ft. 0 in.
	Coal	3 ft. 0 in.
Lower Yard coal. Top, rock.	Clod	0 ft. 4 in.

With regard to Mr. Naysmith's letter in last week's Journal, I wish that gentleman to understand that I have not charged him with being either unfair or dishonest in his remarks on "long wall." I believe him to have written in all sincerity, and to have only said what he thoroughly believes. The remark in my first letter may, perhaps, be open to too wide an interpretation; but I am far from having any wish to throw any aspersion whatever on Mr. Naysmith's letters, and am sorry that he should have read it so. What I meant by the remark was, that the general tendency of Mr. Naysmith's letters (though, probably, quite unintentional on his part) was to give English colliery viewers an erroneous idea of the capabilities of their professional brethren in South Wales, and of their power to apply their own experience, and the experience of others, to the best and most profitable known method of working any given seam of coal. I owe Mr. Naysmith this explanation, and am, therefore, not sorry that he has made reference to the remark open, in his opinion, to such a construction. Having given Mr. Naysmith the above necessary explanation, allow me to draw attention to the inconsistency of this letter with a previous one of his. He tells us that the statement made as to the successful working of long wall in this district "is nothing but what he has known for some time;" and yet he has asserted that long wall cannot be worked in South Wales! How does Mr. Naysmith harmonise the two statements?

The remark in his letter on the Rhymney long wall, in spite of the ex-

planation given in brackets, is very ambiguous; I can hardly think that he meant it in downright earnest, he must have for the moment turned facetious, and playfully designated the above work as "patching." The 9-feet, which has a clod in the middle, is worked at Rhymney on the "long wall" method, and a great portion of the 4-feet at Navigation Colliery as well. I think that both Mr. Naysmith and Mr. Ross are labouring under a similar grand mistake. Because one defends the long wall system, and maintains that it can be worked, they run away with the idea that one wishes the system to be introduced "universally"—that is, indiscriminately to all seams of coal alike, under any circumstances.

Mr. Ross says that the advocates of the "universal application" of long wall in working coal are mining quacks. I agree with Mr. Ross, that they would lay themselves open to such a charge. The friends of long wall know well enough that there are seams of coal that cannot be worked on long wall for the want of rubbish, &c., to stow the gobs, and they think that the attempt to work long wall in such seams would be truly worthy of the wise men of Gotham. I cannot help drawing attention to Mr. Ross' two-edged remark contained in the two or three lines at the end of his letter; it is, that the indiscriminate application of the long wall system, or any other method of working coal, can only lead to disappointment and danger, as shown by Mr. Naysmith and other. I am not aware that Mr. Naysmith has shown the disappointment, &c., of the indiscriminate application of the pillar and stall—but, at all events, Mr. Ross has told him that it will only lead to disappointment and danger. And I think that I am as well entitled as Mr. Ross to say, that the advocates of the universal application of pillar and stall are very near relations of, if not identical with, the "genus" he mentions.

The long wall has been particularly free of explosions since its introduction in this neighbourhood; but disastrous explosions have again and again occurred in the "pillar and stall."

Mr. Dunn, the Government Inspector for the northern mining district, has said in his book that, among other advantages of long wall, "it affords a simple and effective ventilation, and supercedes the necessity of maintaining wastes." Mr. Dunn is an authority that, I think, Mr. Naysmith will not dispute; hence, I think, Mr. Naysmith's grave cautions may be taken for what they are worth. The difficulty of overcoming the antipathy of men to long wall is very trifling. Let the managers have the firmness to persist in, and the patience to show them, the superiority of the method for working certain seams of coal, and in time they will find that the difficulty will be to get the men to work the "pillar and stall" at all. After the courtesy with which I have treated Mr. Naysmith's remarks as to the aspersions thrown upon his letters, I hope he will be charitable enough to suppose that I am not actuated by any dishonest or unfair motives in communicating these letters. The argument is not affected by the name; and thinking that I have an equal right to call myself "Long Wall" as the writer of the letters on "Government Inspection" had to call himself "An Aberdare Collier," I will again subscribe myself,

Merthyr, March 12.

LONG WALL.

VENTILATION OF COAL MINES, &c.

SIR,—We are told by Mr. Mashet that the ingredients supposed to be necessary for the assay of ironstone were upwards of twenty, in which carbon occurred four times, yet thousands of chemists had at that time lived and died "famous." Half a century spent chiefly in the management of long wall collieries, in "fiery" districts, and having set to work more seams than forty managers in some of them, twenty in one property, leads me to say, that in view of the grievous loss of life from explosions, it may be excusable to suppose for a moment that the "great" men have been wrong in continuing the "heading and pillar," or Newcastle system. Stalls, or headings, imply excavations without a current of air, or such a number of splits and diversions of air as must cause the quantity to be too small in places liable to an admixture of gas by "blower." In other words, it is not desirable to keep the whole current of air along the plain faces of the whole colliery (one on each side of the winning shaft), and, of course, round the whole waste, or worked space, as thoroughly as it formerly passed along every yard of the working face of any number of "pit rows" from the deep level back shaft to the air shaft, on the deep level of the former colliery workings?

It was my lot at the age of sixteen to pass weekly along such, in the parish of Staveley, Derbyshire, and along similar at Lings and Tupton, an underground agent of my father. At the former a heading, 10 yards out of the current, was not safe, although blowers were unknown there.

The quantity of coal got from a given width of face is become of greater importance now that the demand is so increased, and the outlay so great consequent on depth, and any interference with the "landage" would be of doubtful value, as it would be so liable to cause dangerous "driving on," or inkwarm feeling as to danger. At Blaenavon, Monmouthshire, long work was abandoned, as requiring too much width of face. I believe Beggarside, Derbyshire, was one of the few collieries having a roof so tough that the horses of one set of men drawing out coal could pass another party in full work, hammering, loading, &c., so that each party having width for a day's work, the whole face of the colliery might be sent out daily, to the depth of undermining (holing) suitable to the vertical cracks of the coal; but our props were required so close to the face that the holers (by night) had only room to sit between them and the face. As main roads for the width of only one day's work were out of the question, and a pillar of coal thought essential between the two roads (to the deep and basest "banker" or faces), the width of face was generally four or five days' work, and its standing hold, or undermined, assisted by pressure of the roof to bring down the coal with less labour and breakage.

But a great change has come over this dream, by means of powder, whether to great advantage to any party—landlords, consumers, coal owners, or workmen—is a question I trust I may approach without an "explosion of gas." To be prepared to do his duty to his client in a face frame patent dispute, Lord Lyndhurst took the brief in his pocket to Nottingham, and learned to work in the frame of each disjunct, and "won in a corner." Let any man with a pencil sketch this correctly. Suppose an endless chain of the coal is not preferable to one impeded by partial diversions without number, and a face full of lodges or headings for collection of gas, and for hitting blowers, where there is little or no air, and men all over the work ribbing pillars. This settled, then how is the coal to come from parties of men along a face of (say) half a mile, when it cannot pass a party at work? The late adoption of roads in the waste without coal pillars brings us to a road behind each party at work; say, on 30 yards of face to be sent out daily; that road, of course, near a right angle with the face, and leading back to an incline plane, parallel with the face, and leading by the main level roadway to the landing shaft. Any man can with a pencil sketch this correctly. Suppose an endless chain on the incline, so that cars can be attached at every road. It will be necessary to have two perfectly-fitting and balanced doors near the foot of each incline—say, hinged at the roof—one of them to close behind the train of cars before the other is reached by the train to open cars. A pillar of coal along the main road to be air-tight to the doors.

Supposing a colliery opening, and the first object to be to get the heading up or to towards the former works. An old or new shaft for air there would imply a split air, if the faces right and left are worked, but under the tubing system old shafts may be set to the main shaft, as a "take up," with "curtains."

It may be said the vertical cleavage, or cracks, are seldom at right angles with the deep level. I reply, the inclines may be so as the variation from the angle in the length of a day's work of face is nothing. There may, of course, be several level horseways for each face, and their inclines; but from what I hear of some of the greatest doings in Derbyshire, coal is worked on the "end" as well as face, and below level, so that a colliery is any shape. One body of air for both faces, or round all the waste, implies an air-way along its upper side; to which, of course, hydrogen will rise and vent from the waste, and be carried off.

Supposing the pumping shaft sunk a few yards, or feet, below the seam; if there be a smartish dip of the seam the water level would be full of water on a stoppage of the pump, before it would rise over the rails of the horseway. Hundreds of lives lost had been saved had there been a few hundred yards of perfectly dead level at the pit bottom, and so below the level of the road.

In Cwm Amman a shaft of heavy cost (140 yards deep) could not be worked until three hours after a stoppage of the engine, though the levels were driven out several hundred yards. To convert the bad levels into water sums, I put a scaffold 9 ft. up the engine-pit, and started the horseway, which, driven dead, crossed the deep level on each side the engine-shaft, within 60 yards of air shaft. A Newcastle agent, recommended to a London railway and coal company, whose "articles" during the time had been continual in a Swansea paper on Mining, Dr. Clanny's Lamp, &c.

I had a drift, 200 yards in a fault, driven so dead as to have a few inches of water on the bottom, aired by foundry fan and 4-in. piping. The friction at that length of pipe beat the fan. For a few days we found a current of good air going in at the surface of the water, and one of gas coming out by the top, and worked without fan 100 yards on. There was an upward way for the gas at the mouth of the level, and a quick draught passed. It was left still at night.

All collieries should have ladders from stage to stage, and a drift began at a few score yards to the rise of the level, and hitting the ladder in the shaft at (say) 20 yards from the bottom. This, at a cost of about 100l., would have saved the lives of the Hartley and Clay Cross men, and those of numberless other works. The ladders might find place among the pumps, and be daily useful; or in the segment of a shaft not occupied by carriages, as I had an hydraulic fan for lifting the coal. Any old colliery could soon be swept clean of pillars, and taken in one face of long work for each "side."

It gives on old hand a poor opinion of progress to find that in most shafts where there is only a lift-pump and a plunger, the former, whose bucket and clack could be changed with near its whole length under water, is the upper, and the latter, which 20 ft. generally puts out of reach of "screwing down," and becomes useless, is in most cases the lower lift, so that shut in by water there is little hope for men. This lately kept a colliery near Sheffield idle, except drawing water, nine months. The question of whether this or any other form be suitable to a seam, and how and what difficulties can be dealt with, may be answered by the fact that a few bells ring thousands of changes, or a circumstance alters a case; but any good workable seam is open to long work—generally pliable rock preferable to rock.—Bank-street, Sheffield. T. BUTLER.

TRAMWAYS IN THE METROPOLIS.

SIR,—I have read, and derived much amusement from, the letter of "Observer" on this subject, published in last week's Journal, and can readily see that he is neither engineer, financier, nor utilitarian; but whether he is a gentleman with more money than wit, or one who seeks to play upon the credulity and gullibility of the public, it is difficult to say, though I should incline to the former opinion. The line he proposes would cost nearly 10,000,000l., than 2,000,000l., and the dividends to the shareholders would be from 1 to 2 per cent. instead of 12 per cent., as he estimates. "An Observer" has evidently misunderstood the Act, which provides for the expropriation of property for railway and similar purposes, which simply provides that the property required shall be sold by the owner at a reasonable

price, and not, as "An Observer" seems to think, at the price the land was worth before it was built upon. Such a tramway as that proposed by the Epsianade and General Conveyance Company would necessitate the removal of some millions worth of houses alone, and as the line would certainly possess no greater advantage than an ordinary railway, I cannot see how greater success can be reasonably expected.

If tramways are to be introduced in any form it must be in existing streets, and the wheels of the tram carriages must be so formed as to turn off or on the line at pleasure; this would necessitate a good broad wheel; and as to the flanges for keeping them on the rail, the best arrangement would probably be to provide projecting and withdrawing studs of the requisite height. It is true that a great difference is experienced in the tractive power on or off the rails, but the many advantages would be to some extent a compensation for this difficulty. PRACTICAL.

MINING MACHINERY—ENGLAND AND AUSTRALIA.

SIR,—Before entering on the description of Crushing Machinery, I wish to offer a few remarks upon the process of gathering gold from the mineral, to define the technical words used to describe these processes, and so to give a clearer idea of what quartz crushing really is. The process may be said to embrace three distinct operations; and anyone wishing to reason upon the several methods employed must keep this division clearly before him:—1. The crushing of the mineral, or the reduction as it is best to term the breaking down the mineral, to set free the particles of gold.—2. The amalgamating or the mingling the reduced mineral with mercury, so that the mercury shall hold the minute particles of gold in solution.—3. The separation or the retention of the gold (or amalgam, as the gold and mercury combined is called) whilst the refuse, or mineral gangue, is washed away. We have, therefore, the reduction, amalgamation, and separation—three distinct processes—which must be clearly understood to enable us to reason upon the several methods employed for extracting the gold from the mineral gangue. First amongst machinery for extracting gold stands the CHILIAN MILL; the most efficient, the most simple, the only machine which nearly combines within itself, and at one continuous process, the three separate divisions I have mentioned. It may be described as a pair of iron edge runners (similar to those used for grinding mortar, gunpowder, or linseed) revolving round an upright shaft upon a circular bed-plate; the edge of the runner is either square or convex, and the circular bed-plate is accordingly flat or concave; the diameter of the edge runners is from 4 to 6 feet, and the thickness from 15 to 18 in.; round the inner and outer edge of the circular bed-plate an iron rim is fixed, so that the wheels or runners revolve in a water-tight trough. A charge of mercury, about 100 lbs., is placed in the mill, the quartz is thrown under the wheels, and a small stream of water is allowed to flow in, and passes out over the inner rim. This is called an *inside* discharge; and the height above the bed-plate, at which the water escapes, is called the *overflow*. Under the action of the runners the quartz can be reduced to impalpable mud; in fact, there is no reasonable limit to its fineness. The amalgamation is effected under the most favourable conditions, the mingling with the mercury taking place at the time the gold is liberated from the stone. The separation is effected by the current of water, and depends for its rapidity upon the centrifugal force caused by the greater or less rapidity at which the mill revolves. Upon this velocity depends the perfect action of the mill; it may, through ignorance or cupidity, be pushed to such an extent that nearly every particle of fine gold may be lost.

The most perfect way of working these mills would be to charge them with quartz and a little water, till the whole became a thick puddle, thoroughly incorporated with the mercury; then to allow the stream of water to flow in and out to carry away the refuse; but this would be too expensive, and practically impossible and unnecessary. Worked continuously and carefully as to its velocity, and the amount of quartz and water let into the mill, there is no process that is anything near it for efficiency and simplicity. The mill needs only to be stopped once a week, and the whole process of clearing the mercury and amalgam need not occupy more than an hour. With rich stone—say, over 2 ounces—it is the only plan that should be adopted; but the cost of working precludes its use with the poor varieties of ore. A full-sized pair of runners requires from 4 to 5 horsepower, and the work done should be under 20 tons per week with ordinary stone—with some varieties much less. The disadvantages of the Chilean mill are, relatively, its first cost, the expense of working it, the small quantity of work performed, and the loss of mercury; this latter charge against the mill is more frequently caused by trying to force the mill to do more than the proper quantity of work. Under the grinding action of the mill, the mercury becomes divided into minute particles—*floured*; and if the velocity of the mill is too great, the current of water carries some of the mercury away. It was to obviate this that the convex edge was adopted, for the purpose of keeping the mercury concentrated in the concave bed-plate; but it was obtained by the sacrifice of a portion of the reducing power of the mill, the flat or square-edge runner, grinding more stone; it is, however, not important, for the reduction power of the Chilean mill is in excess of its separating power. The loss of mercury in a mill is sometimes stated as high as 150 lbs. per annum; it is much less if properly managed. The price of crushing with the mill is so much dependent upon quality, that it is no test as to its cost (the cheapest being often the dearest); from 12 to 17 10s. may be taken as the range. When very good work is required, the mills should not make more than 12 revolutions per minute, and the overflow should be 18 in. The stone is generally burned, and it should be crushed down to about the size of hazel nuts before going into the mill. Both these processes are to save the wear and tear of the edge runners. The burning, also, if clay should be mixed with the quartz, materially assists to keep the water free from the otherwise soluble clay; a matter of great moment with rich stone and fine gold.

I may illustrate the difference between good and bad working of these mills by this fact:—I have taken from the tailings, or refuse, of quartz crushed by one Chilean mill, which had returned 2½ ozs. per ton, at the rate of 14 grs. per ton, or '01 of the total amount in the stone; whilst from another mill, which gave a return of 11 ozs., the loss was 3 ozs. 8 dwts. per ton, or '20 of the gold contained in the stone. Some portion of this discrepancy was due to a difference of material; but as I saw the working of the mills personally, I know that by far the larger portion of it was caused by bad management. No one who has seen the simple working of the Chilean mill, and who has mastered the simple principles upon which its whole action is based, can fail to see the folly of the so-called improvements springing from it; most of them projected by sanguine and interested inventors, more anxious to push their whims and crotchets than to elicit truth. The Arrastre of South America is but an old form of the Chilean mill, in some cases the dragging instead of rolling being substituted; a matter of no moment, as I have before stated; for the reduction power of the Chilean mill is already in excess of its separating power; and there is no practical use in pushing the reduction beyond what the mill is quite capable of separating.

Having now these principles to start with, let us see the modifications from them. First came BERDAN'S MACHINE; in its reducing power far behind the Chilean mill, in its separating power infinitely worse, both in theory and practice; as a piece of mechanism, compared with the mill, costly and clumsy, and wearing out far more rapidly. I saw the first worked at Sandhurst, in 1855, which after a few months' trial was cast aside. I saw others working—one at Blackwood, where, from the irregular shape the balls had taken, they were bounding about most violently, and, in fact, acting like stampers, much to the satisfaction of the quartz-miller, who assured me they were doing the work much faster than when they had their original spherical form. Just at that time the Chilean mill started, and at once cut short all experiments with Berdan's machine.

Directly following it came BRITAIN'S MACHINE, a far better machine in its separating power than Berdan's, inferior in its reducing power, but just as useless as a practical instrument, and in no one respect equal to the Chilean mill; in fact, it was nothing more than a toy. About the same time, or 1856, an attempt was made to push, or drag, round balls, instead of the edge runners, in the concave bed-plate of the Chilean mill, for what advantage I never could learn; it only appears to me a bungling, complicated way of doing, in a different manner, what the convex edge runner does. The friction of the machinery is enormous, whilst the action on the quartz is nothing compared to the edge runner. A machine of this kind was tried at Clunes, and very speedily abandoned. I saw it standing idle, whilst the Chilean mills around it were as busy as they could be, charging 5l. per ton. I believe the Cwmbeisian are trying this old idea.

Finding the balls impracticable, another sanguine inventor converted them into blocks, and, dragging them round the concave bed-plate, procured a modification of the old arrastre here again, whilst the friction on the machinery is increased, the action on the quartz is less, and the amount of work is so trifling that the cost of working is very high, and altogether impracticable; this after great difficulty had a trial, and was abandoned. It would seem as if the object of inventors was really not to crush quartz, but to grind out their expensive machinery in the quickest possible manner, and at the highest expenditure of power.

The Amalgamating Machinery at the Clogau and Garth Gilt is, I be-

lieve, only a modification of the machine I have just referred to. The rubbing surfaces are flat instead of concave—by no means an improvement, if the favour that the convex edge runner is held in (on account of *flowing* the mercury less) is a test. The application of steam to the pans has been tried again and again, but no one ever detected any benefit from it; in fact, the quantity of water used very quickly reduces the temperature. I repeat that not one of these several methods are in any one respect equal to the Chilian mill; they are all very bad modifications of some one principle of it, and where they have been practically tested in Australia, dear-bought experience has proved their utter worthlessness. In their reduction power there is no comparison whatever; in their amalgamating much worse, on account of *flowing* the mercury more; and in their separating power dependent on the same principle, with greater difficulty of application.

The next machinery to consider will be the STAMPS, with which I will commence my next letter. W. M. BROWN.

Park-road, Edmonton, March 10.

STAMPS VERSUS OTHER MACHINERY.

SIR,—In my communication on this subject, published in the Journal of Jan. 31, I wrote in a general spirit, with scientific views, and without alluding, or intending to allude, to anyone personally. I mean to say that I wrote the article in as fair and liberal a spirit as anyone could who advocated one side of a question for the purpose of eliciting the opinions of those who supported other systems for effecting the same purpose. I at least gave a foundation for a fair argument by stating facts, by giving statistics of what had been done, and of what could be done by stamps; and at what cost of power, money, and labour, including time employed per ton. Mr. Mosheim has taken upon himself (with the assistance of some other party) to write an answer to my letter, which is full of personalities, equally untrue as disagreeable, and in support of the arguments in which he has not condescended to adduce a single fact or proof; he innocently thinks that he has disposed for ever with the question of stamps or stamping machinery, merely because he states that I defend an "old-fashioned" plan, and that he has crushed upon a different process: I hope in his next promised communication we shall have the missing data as to cost and results. How would Mr. Mosheim's grinding and amalgamating apparatus answer for conveying on mules into the interior of a country like Brazil, where one mule load is 150 to 160 lbs. on each side? Mr. Mosheim is so good as to inform us that there has never been, nor is there, anyone employed in this district (Merionethshire) who understands anything about gold extraction, except, of course, his learned self. Now, if Mr. Mosheim, instead of running down, and recommending me, who has served a ten years' apprenticeship in the gold fields of Brazil and Chile, where we had to deal with not only common, pyrites, and other metalliferous quartz, and the heavy "jacotinas," or oxide of iron, but also rich auriferous copper ores, containing 12 to 24 "castellanos" of gold per carga, and 33 per cent. of copper; I may add that I have had nearly nine years' further experience in metallurgy in Spain and Germany, and have repeatedly visited the various mining districts in England and Wales, paying particular attention to the crushing, concentration, and treatment of ores by smelting, amalgamation, and chemical solution. The people and the rich European companies engaged in gold extraction all these years in Brazil and Chile have not been dreaming all this while; they have lived to see many of Mr. Mosheim's countrymen go out there with their patent schemes, and have seen them thrown aside to make room again for the "old-fashioned stamps," and many of the more recent inventions have been tried there and failed. I say again, that if Mr. Mosheim, instead of becoming so directly personal, had given us some facts instead of "palaver," then he would have contributed somewhat towards the public weal. I cannot, however, let his letter pass without further notice, and omitting the exordium, which contains generally only a few egotistical and very common-place observations; but taking exception to the gratuitous piece of information, that none of the scientific metallurgists in this country pay any attention to the extraction of the gold in this district—1. I will ask Mr. Mosheim whence he obtained the knowledge that *Moses was a gold extractor*, and where, from what, or by what process? I used to be taught that the gold used by the Hebrews was imported by sea from Ophir, and from other distant countries.—2. There is no wonder that mines will pay now in California which would not pay five years ago, because labour and capital now are cheaper and more abundant than at that period; also roads and other means of communication have been made and improved, and skilled constructive labour and mechanical manufactures and works are established and become more common and cheap.—3. The gold mines in Wales do not pay so well as the Californian, simply because, on the average, they are not so good, notwithstanding Mr. Mosheim's assertion to the contrary, which I defy him to prove—there are doubtless a few, but very few, of the present mines in the Merionethshire gold field which will repay the outlay (I do not say to yield a profit); and I will venture to assert that, as affairs are managed in the average of the mines here, a ton of ore cannot be broken, cleaned, brought to the works, and reduced (by any system) for less than 25s. per ton, and I am confident that this is far below the mark.—4. Mr. Mosheim is an inventor himself, and has successfully "put off" his own machines upon several companies in this district, and therefore he should not rail at other inventors.—5. I recommended wet stamping (which I beg to observe is different from wet crushing) as a general rule, but where no water is to be had, or is too expensive, then of course dry crushing or grinding is preferable; dry stamping is a system which only novices would employ. All practical metallurgists know that the crusher will do more work dry than the stamps, and cheaper. I have been obliged to use dry stamps myself where there was no water nor power to work an efficient crusher, and have concentrated successfully silver ores by the dry process. A writer in the Journal of February 28 informs us that in some parts of New Granada they employ the dry process for separating gold from its ores. Let Mr. Mosheim turn his eyes eastward to Australia, and there he will find the "old-fashioned stamps" in general use, and surely the intelligence of the Australians cannot be so far behind that of the Californians as he would have us to believe.—6. Mr. M. tells us that he crushed thousands of tons of ore, but he tells us nothing of his losses in tailings, and even if he did, it would only be an *ipse dixit*, unless otherwise corroborated. I reiterate my former assertion, that it makes all the difference whether the ore be stamped or ground in frictional contrivances, in so far as the recovery of the gold and the subsequent treatment of the ore is concerned.—7. I am not at all disposed to condemn Mr. Mosheim for giving up the stamps altogether, if he is in the habit of using them in the manner in which he intends to misuse the Clogau stamps (now erecting). I will put it as a fair question to any intelligent Cornish ore-dresser, or to anyone conversant with stamping machinery, whether a stamp, stamping upon a barred grate, the bars being about $\frac{1}{2}$ inch apart and 5 inches deep, the bars being parallel, and without any taper on the under side, are likely to work long or satisfactorily, or whether they will be likely to at first pass through them long flat pieces, much larger than were ever intended to pass, and if they will probably shortly become jammed up with the stone itself? I cannot be responsible for the future proceedings of the Cambrian Consols Mining Company, but if they take my advice their stamps will never "rattle on grates." Let me remind Mr. Mosheim that there are many "old-fashioned" things connected with metallurgy, which are so good in principle that they have not as yet been practically much improved on. I may cite the stamps for wet pulverisation, the employment of mercury and of lead for separating silver and gold from their ores, and the process of cupellation, of the origin of which history gives us no account, but centuries ago it was much the same as it is at present, and I could cite many other cases in point. Mr. Mosheim's remarks as to the futility of endeavouring to recover the gold by "men washing on blankets," are *prima facie* unintelligible, and even taking them for what they may be supposed to mean—namely, the concentration of the ore on skins or blankets—they are based upon no real foundation, while the true effectiveness of the old-fashioned process is daily demonstrated in South America and elsewhere, by excessively poor ores being treated by it with very little loss in tailings, and at a fair profit, by simply using skins and blankets, and finally cleaning the gold in the bates (if amalgamation were employed the profits would be greater). I will undertake by this process to save profitably 80 per cent. of the assay content of ores resembling those of the Cambrian in size of gold and nature of gangue, at a cost of 3s. 6d. per ton, working reduction cost. I do not doubt that my friend, Mr. Mitchell, will feel overpowered with gratitude for Mr. Mosheim's condescension and sanction in allowing him to erect his machinery for trial, but will respectfully decline the like honour for myself. Time and facts will decide upon the respective merits of Mr. Hopkins's and my process. If Mr. Mosheim's system of grinding is so very good, why does he not introduce it to the tin mines in Cornwall, this would bring him and the foundry he patronises more profit than the mines of Merioneth-

shire. I will conclude this long and tedious answer to Mr. Mosheim by stating that I do not believe any machine is, or will be, constructed which will amalgamate the whole of the bulk of the auriferous quartz so well and practically, economically, as the process which begins by reducing or concentrating the ore before amalgamation to one-fourth or one-sixth of its original bulk. We, as practical metallurgists, do not look for, nor expect to get, even 1 per cent. of the gold from the ore; we get out as much as will pay us well, and we leave the residue for those who can make a profit by extracting 2 dwts. of gold per ton of ore, at a cost of 10s. per ton. There is always a limit in ultimate extraction, and frequently the last 1 or 2 per cent. cost much more than they are worth. There is an old Spanish maxim—"Quien muchos abarea poco aprieta;" and leaving Mr. Mosheim to construe this, I hope that if any other correspondent chooses to take up the gauntlet I threw down in defence of the stamps, he will do it in a more fair and enlightened spirit, giving practical results and statistics, and refraining from personalities, which can only give rise to disagreeable answers—*Cave canem*. WM. REAY, JUN.

GOLD MINING IN MERIONETHSHIRE.

SIR,—This subject is now so prominently brought before the public, and discussed by so many men eminent in the profession, with so diverse views, and no small share of acrimony, that a few lines from one who has lately been on the spot, and who acts without bias in the matter, may not be unacceptable to many of your readers.

That gold exists in certain lodes has been proved beyond all doubt and controversy, but whether all the district can be of such value, is to me a matter of considerable hesitation. Even were that the case, the expensive staffs of officers and experimentalists would render success as paying mines, to me, exceedingly problematical. It is not for me to be invidious in naming such, but at the same time the proprietors thereof should know where the cap fits, and act accordingly.

The most celebrated lode hitherto proved has, undoubtedly, been the St. David's, in the Clogau Mine, where the returns have surprised the most sanguine, by Berdan's process, which had been declared incapable of securing more than three-quarters of the gold to be obtained by assay. The gold was found here in a visible metallic state, the nuggets being unevenly distributed, and perfectly malleable, for the greater quantity was procured from quartz in which no gold could be detected by the eye or by powerful lenses, thus proving its existence in a most minute atomic state. This fact, however, by no means is decisive that every quartz lode in the district in which gold is not visible shall be found remunerative. My guide would be a similarity of abnormal conditions, character of lode, its magnetic direction, and its relative connection with cross-courses and other concomitant lodes. The bearing of the auriferous lodes is, as a rule, about 10° north of east; the cross lodes are not numerous, but where the junctions do occur, the effect is most marked, and in consonance with such occurrences in most mining districts. There are flookan lodes which run very nearly north and south. I should place great reliance on these for making good silver-lead in depth, more especially at the East Dolfwynog, which is now made part of the property of the Dolfwynog United Mining Company. This place, I think, will be highly valuable for lead and copper, being so nearly allied to the old Dolfwynog Copper Mine. I have little doubt gold will be found at the new mine, as I can see no reason to the contrary, the quartz and spar found therein being perfectly synonymous with some beautiful specimens of visible gold shown me some years since by Captain Davis, the then manager of the mine. Considerable quantities have from time to time been discovered, but prejudice, aided by ill understood measures for extracting the precious metal, prevented its perfect development. Active measures are now being taken to use the most improved modes, with every probability of success. It would be scarcely possible to offer more decided proofs of the rocks being auriferous, than the fact of nearly all the beds of the rivers yielding grains of gold, brought down by the mountain torrents, which are so impetuous here. At a branch of the river near Dollyell I found a gold streamer at work, with cradle, tin pan, bowl, and, in true Californian style, he had in his possession a tobacco-box full of gold dust, and owned to having, on one occasion, found $\frac{1}{2}$ oz. in three hours. The good fellow complained that the river was too "big" there, or he would, probably, have obtained more. I got out some of the gold-bearing dirt, and satisfied myself, by experiment, that gold is there in no despicable proportion. By way of further trial another man was next day placed on another part of the river, in proximity to the streamer; he, also, in a brief period, produced gold dust. I requested him not to work it down so closely, but to make a less washed van; he soon brought in a considerable lot of fine sand, in which gold was very easily detected; the particles appeared to be considerably attrited by friction, but all of them had a lamellar formation, somewhat similar to mica. One piece, the largest I saw, was about the size of half a grain of barley, and would, probably, weigh 4 grs. It was fine in colour, precisely like the specks of gold found *in situ* in the quartz lodes. If cheap means could be adopted to extract all the gold from the alluvial deposit, there cannot be a doubt of its being highly remunerative, the quantity of rough material being absolutely inexhaustible from this source, irrespective of the gold lodes.

Careful and costly experiments are being conducted at the Cefn Coch, Cwmheisan, and other mines; pending these, all the mines are storing their quartzose productions, none being willing to lose so large a proportion as has been satisfactorily proved to have been lost. Mr. Mitchell has had some most elaborate machinery just put to work at Cwmheisan, but it has not yet been in practice sufficiently long to afford a fair decisive proof of its adaptation for extraction by grinding and amalgamating processes. At Cefn Coch Mr. Mosheim has been for some days at work with his grinders and amalgamators, both very simple, and apparently doing their work well. One or two charges had been drawn previous to my visit. The result had been forwarded to the committee, and Mr. Mosheim has got orders to erect three of his machines. So far so good. It has been found that the gold is so subtle and fine as not to be caught by the hide and blanket process, adopted at the Great Cambrian Consols.

[To be continued.] GEORGE HENWOOD.

MINING MACHINERY—CREASE'S EXCAVATOR.

SIR,—I have read Capt. Martin's letter respecting Mr. Crease's excavating Machine, also Mr. Crease's, and the remarks in last week's Journal, and beg you will permit me to state some facts, and make a few comments on the same subject—the only excuse I will attempt to offer is its vast importance. It is necessary, for my remarks to be of some use, that I should explain the grounds upon which I venture an opinion, which I intend to be unequivocal and concise. In the first place, I am a mechanic of 25 years' experience, most of which time I have been so circumstanced that it was necessary for me to use the "finding-out" faculty; 12 years in Manchester, where they are supposed to have some knowledge of machinery, and by it to have accomplished many things by many deemed impossible; the other portion of my experience has been in this district, where I have been almost wholly engaged in the construction of such machinery as is in general use for mines; and from my first sight of the mode of operating on the rock, 13 years ago, it struck me, from the very uniformity of the operation, that it was just the work for a machine; but I realised at the same time, and by subsequent reflection, the whole of the difficulties to be encountered—first, the power, thinking of steam suffocation staggered me; then drilling holes, if even a drill could be made to stand, how was it to be turned; then, again, I supposed a variety of things, but confess that the apparently interminable difficulties, amongst which was the very formidable one of adaptation to position and facility of fixture and removal, made me find the time (which is 16 years ago) turn my attention to quite a different mode of operation, and I wrote to you some six years ago, and then described a machine for boring a circular level and shaft, which notice has been very clumsily attempted to be carried out by Capt. Penrice. Circumstances prevented me doing further in the matter at the time you published my letters, and made some favourable remarks, stating your conviction that it was practicable for machinery to do the work, and during the past 13 years I have never lost sight of that fact; but now I come to more recent dates. About 20 months ago I was introduced to Mr. Crease, but had only a very short conversation with him. Some nine or ten months ago circumstances brought us again together, and at that interview I put such questions which convinced me that Mr. Crease was on the right track, and I said so positively to a friend who was with me after I parted with Mr. Crease. Subsequently, I have at this place made some portions of the apparatus, and a good many experimental alterations, and was with the machine part of the first one of the two months, which was, however, only two weeks and four days. The first day I remained 50 hours with the machine, and succeeded in making it bore; then the following days most of the time was employed in teaching the labourers to bore and to work the machine generally, and when I state, for my own part, I never noticed how holes were bored to tear the rock, and the labourers who could be obtained to work, it will explain why the useless and injurious holes were bored, as referred to by Capt. Martin, every sentence of whose letter was most carefully and truthfully penned, after remaining with the machine incessantly 16 days (15 hours, on the average, each day). The weak points, as alluded to by Mr. Crease, were fully seen, also the modes of adaptation not suitable, and the basis for the remedies considered; so much so that I myself offered to drive the level at three times the speed with the machine they have averaged with hand-labour, under penalty; and you can judge, from the substance of this letter, I am not altogether in the dark, and I expect to accomplish it, for the following reasons:—Two borers can be worked in the end, whereas only one can be worked by hand-labour. The machine (each borer) can be driven 500 blows per minute; hand-labour can only average (say), at the outside, 10. The borer in the machine will be turned with mathematical accuracy, thus ensuring better effect for each blow. The holes can be bored in every position, and directed in all positions, with the same facility and in nearly the same time the hand-borer can, while the machine can be removed and brought to its work in the same manner as a team-wagon; therefore, the machine is the human arm in every sense of the word, having the advantage of a uniform effectiveness in all positions, with the untiring

energy of steam or compressed air; therefore, I have not made much of a venture, and I think that this increased speed of driving will be exceeded, and without more men being employed than at present, after a few months' working, and the men getting accustomed to it. There are many things that could still be said; but I have already explained enough to satisfy those who are conversant with the matter, and will only now repeat what you have so very significantly observed—that this invention is destined to accomplish an entire change in mining and tunnelling, and that no amount of prejudice, or interest, or I don't-believe-ism, can stay its progress. One or all of all these things may delay it, and have done so already; indeed, had it not been for their effect the machine would before this have been in full operation; however, that will shortly be overcome, as other and more formidable obstacles have been. In a few days a machine will be complete, about the result of which I am as certain as I am of a steam-engine, a lathe, or, in fact, of any other machine. Then the cry will be—Who would have thought it? Well, really, I am glad of it, indeed. And thus attempts will be made to excise the most determined and effective hindrances for the time that subtlety could devise. I must, also, say that Mr. W. Williams, of the Vigna and Clogau Mines, after seeing the machine at work, stated his firm conviction that it was on the right principle, which opinion was confirmed by every one having a knowledge of the subject, who has carefully watched the working. GEORGE GREEN.

Cambrian Foundry, Aberystwith, March 5.

GOLD EXTRACTION—MR. READWIN AND MR. HOPKINS.

SIR,—In reply to Mr. Evan Hopkins's unprovoked attack on me in last week's Journal, allow me to advise him to keep a little nearer the truth the next time he descends from his lofty height to notice me. He must well know that *abuse* will never reach the truth we are in search of—reason may, and perseverance certainly will. I, with others, have for a long time been looking anxiously for the result of Mr. Hopkins's perfect plan of gold extraction. I do not hear that it has been satisfactory to those interested. We are now looking forward to the time when his *pluperfect* patent method is adopted at the Cambrian Mine. I wish him success with all my heart. T. A. READWIN.

Stretford, March 12.

THE GOLD QUARTZ PROCESSES.

SIR,—With reference to Mr. Evan Hopkins's letter on "Gold Extraction," which appeared in last week's Journal, it is much to be wished that the writers on this subject would confine themselves to statements of fact, or to proposals to test practically their methods at, or within, some specified periods. Results sufficiently authenticated are all that ought to have weight with the public in such matters, and are all that have weight with those of average experience. Those who are not acquainted with the disputants cannot take the assertion of one that another's experience is a "myth," merely because it differs from his own.

I am a shareholder in Cambrian Consols, as well as in other gold mines in Wales (but not in any one with which Mr. Mosheim has to do), and am greatly interested in the success of Mr. E. Hopkins's system, but see that the experience referred to in Mr. Mosheim's letter of February 28 is much more extensive than that which Mr. E. Hopkins speaks of—namely, reducing 60 tons of quartz. Mr. Hopkins may be able to continue this profitably and effectually, or he may not.

Two questions I would like to have answered by Mr. Mosheim, if he would allow me to ask, are—What mine does he speak of when he says, "I have myself crushed thousands of tons of gold ore from my own mine?" And, also—Why he calls the efforts of Mr. E. Hopkins to get gold by men washing on woollen blankets "hopeless." B. March 11.

BRAZILIAN GOLD MINING.

SIR,—Capt. Treloar is mistaken in his supposition that Santa Anna is the only Brazilian mine which has afforded its purchasers *eight hundred and eighty oitavas* of gold during their first months' work. In the first four weeks after Gongo Soco was bought by the Imperial Brazilian Mining Association its produce was more than *eight thousand seven hundred oitavas*.—March 9. II.

ALTERNATIONS OF TIN AND COPPER DEPOSITS.

SIR,—Will you allow me to state in the Journal that it was my idea in 1845, before Dolcoath was cut rich in tin in the bottom, that tin would be found under courses of copper, and copper again under the tin; and Mr. Charles Fox now seems to be of the same opinion. I erected the first engine in the Grenville district—in fact, on the spot now Grenville Mine, and then Newton Moor. I borrowed the engine of the late Capt. Teague, of Redruth, and after all was obliged to give it up, as all the clever ones said the lodes would be cut out as soon as they touched the granite. West Basset, North Basset, or South Frances, at the time I allude to, had not been discovered. I believe, however, that the west end of Old Polgine Mine, in Grenville sett, is as good a mine as either of the lot.

I am led to make these remarks from reading the recent able address of Mr. Charles Fox, at the meeting of the Miners' Association of Cornwall, from which I extract the following—

"In conjunction with the late Lord de Dunstanville, some of us spent much on the lodes of Burcoose, Tregowan, and Wheal Fanny, relying on the character and quantity of the gossan at that time supposed to be immediately over the ore, instead of being connected with it (as it was) in abundance on the east or west. Until late years, when tin occurred under courses of copper, it was but little wrought; recent experience shows how great may be its importance. Whenever such a coalition of the lodes and adventures in different sets may take place as may warrant their pursuing under very long leases the deepest and most extensive workings, for the simultaneous draining and exploring of numerous adjacent lodes, productive at less depths, courses of copper may again be found below the tin."

The following remarks are extracted from a letter which I addressed to the *Cork Southern Reporter*, of Oct., 1845:—

"On the top or back of lodes there is very often found a brown iron substance, known as *miners' moss*, or *gossan*, and it is by the character and quantity of the gossan that most miners can determine, with a great degree of certainty, whether or not copper is likely to be found underneath it; and it is a curious coincidence that in some of the most valuable copper mines in Cornwall tin has been first found, then copper from 150 to 250 fms. deep, and then tin again, and it is not improbable that, if machinery of sufficient power to draw up the water and stuff could be erected, tin and copper might be found alternating with each other, a depth of many miles."

WILLIAM THOMAS.

Coosheen Cottage, Cork, March 10.

WHEAL HARRIETT, AND PENDEEN CONSOLS.

SIR,—In my last letter I stated that I would soon give the "envions brokers" (as a correspondent in your Journal styled them) another opportunity to show their spleen. I now fulfil my promise.

The first mine I would recommend to the reader's notice is WHEAL HARRIETT, a mine which I consider remarkably cheap at its present price— $\frac{3}{4}$ to 4. As in the case of other mines I have written about, I will continue the plan I have adopted with them with this one also; that is, I will give my reasons why I consider that the shares in Wheal Harriett ought, at the present low price, to be bought. The mine is situated in the parish of Camborne, one of the richest, if not the richest, metallic district in Cornwall—the district in which are Wheal Seton, West Wheal Seton, Wheal Gwenn, Wheal Gwenn, Wheal Gwenn, Wheal Gwenn, and other valuable mines. Wheal Harriett is both a tin and copper mine, and the shares were lately selling at 6 to 6 $\frac{1}{2}$; at that time the 115 fm. level was worth 100 $\frac{1}{2}$ per fm., but at the present time it is valueless, and hence the reason of the great fall in the price. The lode in the stope west from the east winze, below the 100, is worth 60 $\frac{1}{2}$ per fm., and the stope east from the west winze is also worth 60 $\frac{1}{2}$ per fm. This is the tin part of the mine. The ends and shaft in the copper part are worth 23 $\frac{1}{2}$ per fm.

Now, the agent is of opinion that, even from the present reserves of tin, the mine can pay 500 $\frac{1}{2}$ per month profit for 12 months. Parties not connected with the mine say it cannot be done for more than half that time. Well, let us suppose that the mine pays only 250 $\frac{1}{2}$ per month for 12 months, what may we not expect at the expiration of this time from a mine situated as Wheal Harriett is, and which is already so fully developed? Consider in that time what will be the extra development of the mine, and combine with it the fact that the copper part of the mine is already paying its expenses. It is not my desire to depreciate other mines, but I would ask my readers to compare the prospects of Wheal Harriett with others; with others which are selling at a much higher price, which are making calls, and which are situated in districts certainly no better, if so good. My opinion is that Wheal Harriett will very shortly worth all the money it is now selling at, as a copper mine, leaving the tin entirely out of the question.

My advice to those parties who have bought shares at a high price is to buy an equal number, or even double the number, whilst the price is low, so as to average, for there is no knowing how soon the 115 may again come to the run of tin ground; and come when it may, my readers may depend upon it, a rapid rise in the price of shares will be the result, higher, I believe, than they have yet seen. If that level had maintained its value to the present time, I am of opinion that shares would now have been 8 $\frac{1}{2}$ or 10 $\frac{1}{2}$ each. That they will meet with the tin ground again in the 115, I have not the least doubt of, and also that it will come in *just as unexpectedly as a new off*. It is certainly a speculation, but one, at the present low price, where the risk is reduced to the minimum point. If the mine can make even half the profit the agents promise, *dividends must be declared*, and this alone will, I expect, cause an advance in the price of the shares. I have already advised speculators to average their shares bought at a high price, and I now advise those who have never as yet speculated in the mine, to buy 20 or 30 shares at the present low price, as I feel confident the risk is but very trifling, whilst the chances of success are remarkably good.

The next mine I shall notice is PENDEEN CONSOLS. The last general meeting took place on Feb. 24, and, from the printed accounts, I find that the copper ore sold in the two months amounted to 5457. 7s. 5d., and the tin ore amounted to 9751. 7s. 5d.; together 15211. 10s. 11d. The dues and expenses being deducted, leave a clear profit of 2427. 8s. 6d. on the two months' working, which, added to the credit balance from the previous meeting, will show that the mine has now a credit balance of 14611. 18s. 9d. There was also more than 300 $\frac{1}{2}$ worth of tin ready for dressing. By referring to the agent's report I find that the ends are worth 60 $\frac{1}{2}$ per fm. for tin; the stope about 100 $\frac{1}{2}$ per fm., and the winze in the 118 south 90 $\frac{1}{2}$ per fm. for the length of it. The copper part of the mine is now very poor, but they are expecting to cut the "great Penden lode" very shortly; and as this is generally supposed to be a valuable copper lode, the shareholders may reasonably expect that Penden may yet be as valuable a copper mine as it is now a tin mine. At the present time, however, we must look at it as a tin mine only, for although copper will for some time continue to be raised (even independently of the "great Penden lode") it is to the tin department we must now look. In the 118 south the lode is now worth 60 $\frac{1}{2}$ per fm., and the stope behind the same is also worth 60 $\frac{1}{2}$ per fm. In the bottom of this level there is a winze sinking which is worth 90 $\frac{1}{2}$ per fm. for its length, as before mentioned, and my reason for again referring to it, is, that although the next level to it—viz., the 130 south—is at present poor, the agents expect a great improvement in it in about a week or fortnight's time, from the fact that *this level will in that time be driven just under this mine*. It will be a very important point to watch, for if this level should prove as valuable as the 118—viz., 60 $\frac{1}{2}$ per fm.—it will add very considerably to the value of the mine. As the winze has been sunk many fathoms below the 118, and in such rich ground, it is but reasonable to expect to meet with the ground also rich, when the level arrives at the part where the winze is sinking; this, however, is not always the case, as I have known some mines in which winzes have been sunk down to the level, and which have proved very valuable all the way, excepting the last 2 or 3 ft., when the ore went off, and, of course, when the level

reached it the level was without one at that point where it was expected to be found. Such cases are, however, more the exception than the rule.

With many mines the fault is that they have too much machinery for the quantity of ore produced; but in Penden Consols the case is reversed, as here they have considerably more than their machinery can manage, therefore they are about to erect extra stamps. This will, of course, require money, but the agent says "We have increased stamping power so shall have no difficulty in obtaining tin to erect any other machinery we may require; and, should present appearances continue, give the adventurers profits at the same time."

Penden Consols has never been such a "market mine;" why I do not know; but a mine with so much work done, with such splendid prospects, with a good balance in hand, with monthly profits making, and with the accounts brought up close to the time of meeting, and kept in a most business-like manner, it surely ought to command the attention of brokers, and so cause them to recommend the mine to their clients. When I see some mines puffed off, and continually recommended to the public, which mines, in comparison to Penden Consols, are mere trash, I am afraid some brokers do not study their clients' interest quite as much as they should. I will conclude by saying that I believe both Penden Consols and Wheal Harriet are perfectly safe to buy at the present prices.—March 12.

A CAUTIONARY MAN.

EAST WHEAL BASSET.

Sir,—Some excitement having taken place about the discovery in this mine, I think it necessary to send you a few lines, to say that the gold in the 100 does not look quite so well. I cannot now value it at more than 60s. or 70s. per fm. The 70 east, on the tin lode, has improved, but there is no alteration in the other parts of the mine.

W. RICHARDS.

THE TYWARTHALL MINING COMPANY.

Sir,—Being a shareholder in the company recently formed for working this mine I was astonished at finding the remarks on the property which have been introduced into the report of the Council of the Prince of Wales relating to the Duchy of Cornwall. The subject interesting as many of your readers, I must ask you to spare sufficient space in the Journal for the statement, that some one officially concerned may offer such explanation as they can, in order to allay the fears which must arise to those who have embarked their capital in the undertaking on reading such an unsatisfactory opinion of its value. I should not have attached so much importance to the matter had it proceeded from any other source than the official Duchy authorities.

A. B.

"TYWARTHALL MINE.—It may be right here to notice a subject which involved rather a large expenditure from the revenues of the Duchy, occasioned by the abandonment of an important mine work within the manor of Tywarthall, in Cornwall, which had been carried on for a considerable period under the name of the United Hills, afterwards called the Tywarthall Mines, and had yielded a considerable income to the Duchy, averaging upwards of 1000l. a year. The adventurers having in 1847 resolved to discontinue the workings, it was represented to the Council that unless they were continued not only would the property in that and the adjoining mines, from the influx of water and other causes, be entirely lost, but a large body of miners would be suddenly thrown out of employment, and, with their families, exposed to great privation; and as it was not found practicable at the time to obtain parties willing to prosecute the adventure, the Council determined, with a view of saving the property from destruction, to continue the workings at the expense of the Duchy for a time, in the hope that some parties would ultimately be found to take up the concern, which was represented as being one from which large returns might be anticipated. The Duchy was accordingly in the year 1848 obliged to abandon the undertaking. The mine has now again been let, but the prospect of any considerable returns from it is extremely uncertain."

CLIFFORD AMALGAMATED MINES.

Sir,—I was glad to see, in last week's Journal, the letter of "A Clifford Shareholder." Certainly the state of affairs and the management of the said company do need some little ventilation. What change has come over it I cannot say. Only three years since gave 5500l. for a Wheal Harriet share, and now it is valued at five, the price of each of which would be 60s., as quoted in the market at 20s. The amalgamation of Clifford with the United Mines was considered to be (as far as I could learn) a good step for all parties; subsequent dividends, however (or, rather the present no-dividend), seems to tell a different tale. I was surprised that the report should say nothing of the resolution about the tenders for materials. If there is a hitch here, I can, in some measure, account for the state of the company. I will tell you what took place in my own neighbourhood some few years ago. We had a Steam Navigation Company here—1200l. per share paid up. For years the company paid nothing to the general body of proprietors, and the shares were down in the market to 25l., 20s. And why? All the income of the company was absorbed by the repairs of vessels and supply of stores, both of which were in the hands of a few shareholders. A change of constitution and management was determined upon, and the good result was speedily apparent. The shares are now selling at 100l., and for the last few years the company has regularly paid, in dividends, 5 per cent. per annum on the 1200l. per share paid up. I wish something similar may be done in the case of the Clifford Amalgamated. Here is a mine selling in only two months (December and January last) to the amount of 9034l., and yet, in February, not a shilling of dividend for the shareholders. Against this 9280l. we have—Labour cost, 5518l.; merchants' bills, 2400l.; coal, 1800l., &c. We see how the money goes. Let the general body of shareholders keep a sharper eye on the management and the cost for labour, and insist on the supply of all materials and stores being open to tender, when, I doubt not, we should soon see a change for the better as regards the pockets of the shareholders. It is to be hoped Mr. Davey, one of the treasurers, who took so active a part at the meeting, in the interest of the shareholders generally, will not relax his efforts, and that a timely appeal will be made to all the adventurers to come forth to his aid. This appeal I hope none will disregard, and if they act with the union and determination of the recent Great Western Railway Committee, I have no doubt they will be equally successful.—Clifton, March 9.

X. Y.

TOWN OF CAMBORNE.

Sir,—This village, or, as it is generally called, Church-town, may be denominated the "town of miners," being, 9-10ths of it, inhabited by men of that occupation. Within living memory it has increased from 35 to about 1500 houses, and contains a population of about 7000. This shows what mining can do for an locality will effect. About one mile eastward is the village of Tuckingmill, where Messrs. Bickford and Co.'s celebrated safety-fuse manufacturing stands. Within my memory this village consisted of about 10 houses—it contains at present about 400 or 500; and within the same period Redruth, two miles further east, has been quadrupled in size. These three places are within the richest mining district in the world—the Butters, Bassets, Tolguess, Setons, Pools, Roakers, Dolcoath, &c., being embraced therein. The houses are so rapidly increasing in the direction of Tuckingmill that in a short time Camborne and Tuckingmill will become one town. Between Tuckingmill and Redruth, the village of Pool also exists, but it is a mere hamlet; that, too, will be annexed to the same town in a short time. Houses in Camborne, and the other places above named, are in great request, and may be let as soon as the foundation-stone is laid. The rents range higher at Camborne, I believe, than in any other place in the county. The stone of which most of the walls consist is a brown elvan, dug from quarries within and near the town. The quality of the buildings has improved since Capt. Joseph Vivian undertook the superintendence of Sir R. Vyvyan's property in the town—the houses being now built in a very substantial manner; and so in the lands of Mr. Basset and Mr. Reynolds. The tenure granted to some is 99 years, determinable on the decease of three persons of the landlord's name; sometimes with one life or more in reversion, at fixed "fines." No freehold can be purchased in Camborne, as in most other towns, the whole being the entailed lands of Sir R. Vyvyan, Bart., Mr. J. F. Basset, Mr. Pendarves, and Mr. C. A. Reynolds. I should like to see the present mode of granting building-leases exchanged for terms certain, (say) 80 or 90 years, which would save the expense of life assurance, and the owners could then see the exact limitation of their interest. Some persons have taken a gloomy view of the house property in Camborne and similar places, presuming that at some very distant date the mines will cease to be worked, and have cited Wheal Vor district as an example. In that district, however, the miners keep a sharper eye on the management and the cost for labour, and insist on the supply of all materials and stores being open to tender, when, I doubt not, we should soon see a change for the better as regards the pockets of the shareholders. It is to be hoped Mr. Davey, one of the treasurers, who took so active a part at the meeting, in the interest of the shareholders generally, will not relax his efforts, and that a timely appeal will be made to all the adventurers to come forth to his aid. This appeal I hope none will disregard, and if they act with the union and determination of the recent Great Western Railway Committee, I have no doubt they will be equally successful.—Clifton, March 9.

R. SYMONS.

ST. JUST CONSOLS, AND TIN MINING AT ST. JUST.

Sir,—A correspondent in last week's Journal has drawn the attention of the public to this company, now being advertised in your columns, as a means for the investment of capital in mining with greater safety than usually afforded, and has stated with much clearness and precision his reasons for assuming it will be most satisfactory undertaking. I agree with him that it is a most splendid opportunity for the readers of the Journal to embark in really legitimate speculation; and I will candidly confess that if the public will take the trouble to apply for a prospectus, and read it carefully, they cannot fail to be struck by the very elaborate manner in which the undertaking is critically gone into, and the conclusive manner in which the high merits of the undertaking are set forth; but there is one feature in it which is, perhaps, more important than all the other reasons adduced, and that is that the management of the mine will be under the active superintendence of Capt. John Cartwright, who is bringing the St. Just United Mines into so highly satisfactory a position in the short space of twelve months—thus keeping the promise he made when he reported on the property originally; and I see he has promised to do the same for St. Just Consols. It is these men who reflect honour on

the mining interest; and they deserve to be well supported by investors, large and small. I need not enlarge on this, as the whole thing speaks for itself, and no doubt the public will duly appreciate it; all I have to say is, that my confidence is very great in its success, and believing that it possesses all the favourable prospects of early satisfactory results, I have applied for a good number of shares. I notice by the weekly report that they are already getting out tin; and a friend writes that they are only waiting for the erection of adequate machinery to have it in the market. This, coupled with the fact that there is to be no call for twelve months, and the whole concern under such excellent practical management, renders further remark unnecessary, and no doubt it will be fully appreciated by the public.—March 12.

ANOTHER SHAREHOLDER.

WHEAL PROSPER (BREAGE).

Sir,—Will you oblige me by inserting the following in the Journal, in answer to a paragraph which appeared in the Notices to Correspondents of last week, under the heading "Wheal Prosper," by a person calling himself "A Large Shareholder." I beg to inform "A Large Shareholder" that he has either committed a great error in his statement, or not knowing better, or done it for the purpose of prejudicing the other shareholders. Capt. Cartwright inspected the mine for a shareholder at the last meeting, and was asked by the shareholders there assembled his opinion of the mine; his answer was, to open more ground on the lodes, and the mine would soon be in a self-supporting position. Owing to there being no dry underground clothing in the mine, I slept in the district, and the following morning I inspected the underground department. The engine-shaft is not, as "A Large Shareholder" describes it, a heavy cast-iron shaft, but a wooden shaft, 14 ft. per fathom. This practical men know is a very easy price. Levels driven on the course of the lode from 21. to 41. 10s. 1. backs stopped from 21. 5s. to 21. 10s. No one can say that this is expensive ground. It also contradicts the agent's statement as regards Treowras lode being cut. I thoroughly believe it is not, for the following reasons. The engine lode is a caunter, running 35° to 45° south of east. Treowras lode is also considered a caunter, and parallel about 40 fms. north of engine lode. Portue lode is nearly east and west, and intersected about 25 fms. east of engine-shaft, on engine lode. The Portue lode is driven to cut Treowras lode in a slanting direction north. To the north-west about 50 or 60 fms. is a lode to be seen at the adit level, which they have hitherto called Treowras lode. But Treowras old mines and workings are to the south-east 250 fms., at least. Owing to the longitudinal twisting and turning of the lode in that long distance, also in turning and twisting from adit to the 30, in a diagonal direction, no one can tell to 30 fms. where they will find Treowras lode. The split up in Portue cross-cut may be the lode seen to the north-west in adit level. I know the copper lode was 1 ft. wide when I inspected it, and if it held good, would produce 1 ton per fm. Although the mine has not produced so much ore from the 30 to the 40 as calculated, the lode has improved in size and appearance. The mine contains a network of lodes. There is a pair of men driving south of engine lode, on Portue lode, to cut another parallel lode, about 30 fms. from the engine lode. The engine charges are also very light; 30 tons of coal monthly will suffice for the draft-drawing and stamping-engines, and the engine for drainage, capable to drain the mine 100 fms. deeper, and all plant properly erected. There are too many practical men connected with the mine to be frightened out of their shares by false alarms. The depth of the mine is only 50 fms., whereas Old Wheal Vor proved good nearly to the 300 fm. level. What did Great Wheal Fortune return above the 50, and what did the mine cost previous to its being brought into a dividend state? Why, 32,000l. and above; and had not Mr. Hoskin come into it at the proper time, and purchased all the loose shares, the mine would have been abandoned. What are the Wheal Prosper adventurers out? Why, about 11,000l. Mr. "A Large Shareholder" thinks that mining is like horse-racing—win or lose in a few minutes—he is mistaken. If he is, however, tired of his shares, I have plenty of friends who will gladly take them, even if it were half of the mine.

Pinebury-street, March 12.

DAVID STICKLAND.

PREVENTING ACCIDENTS IN COLLIERIES.

Sir,—It is, of course, with the best possible intention that Mr. James Rae, of Greenwich, has designed his arrangements for preventing accidents in collieries, but I fear that he has had too limited a connection with coal workings to enable him to effect the object he seeks to attain. His proposition is one which could only secure the countenance of those who have never seen a colliery, or of those who work collieries for pleasure, and not for profit. I should not have alluded to Mr. Rae's invention except to prevent him, as a gentleman that would benefit his fellow-men to the fullest extent of his power, wasting money in the development of an idea which can never be of service either to himself or anyone else, owing to its disadvantages being very materially greater than its advantages. I think you acted very wisely in expressing no opinion upon the merits of the invention, because whilst I can readily see that you could not say anything in favour of the project, to condemn it might have discouraged future inventors, and have caused some really useful proposition to be kept secret.

Even to leave the question of cost entirely out of consideration, there are insurmountable objections to its introduction; it would not even have been useful to prevent the Hartley accident, for really as a means of escape it is no better than the ordinary pumps, as the falling of the beam would as effectually have broken up Mr. Rae's pipes as it did the pumps which were in the shaft; and there would have been just so much the more debris to remove before the men could be reached. With regard to his proposition to use iron tubing, it is, no doubt, valuable, as is proved by the fact that it has been in use in the district for many years.

To turn to the expense of the project, it will be apparent that there will be a rise of at least 25 per cent. in the cost of working, for as his tubes, to be useful, must be 24 or 30 in. in diameter, it will be evident that to obtain the same amount of ventilation as is now secured with a gallery 5 ft. square there will be 25 per cent. more cutting required to make room for his pipes; and, if to this we add the consideration of the cost of the pipes themselves, we shall at once see that the price of coal must be one-half as high again as at present to compensate the coalowner for his additional outlay. The only satisfactory use to which the pipes could be turned would be to draw coals with them upon the principle of the Pneumatic Despatch Company.

G. F. C.

THE PATENT LAWS.

Sir,—It cannot be disputed that the patent laws are most unsatisfactory, and require a thorough revision. At present the opponents to the granting of patents put much force to the great proportion of patents being of a most frivolous character, and, therefore, advise their entire abolition. Such a measure would not only be unjust to the true inventor, but would foster a system of secrecy and misrepresentation. It must be admitted that the publication of specifications tends material aid to the inventor in informing him of the progress made in any particular department.

The idea of refusing a patent on the ground of its being a monopoly is inconsistent with the truth. Certainly that which had no previous existence cannot deprive any one of any right already possessed. In English law a monopoly is defined to be "an allowance of the Crown, by grant, commission, or otherwise to any person or persons for the sole buying, selling, making, working, or using of anything, by which other persons are restrained of any freedom or liberty that they had before, or hindered in their lawful trade." No original invention can possibly be deemed a monopoly. It is, in fact, calling into existence some effect, by the aid of chemistry or mechanism, or their combination, which was not previously known. No patent should be granted except it came strictly under that category.

The accidental discovery of a diamond or a nugget of gold gives the finder an actual property. Anyone who has gone over the same ground might have found the diamond or the gold. The inventor, however, requires to be fitted by a knowledge of his subject, by the aid of his own experience, before he can successfully remedy defects, or meet public requirements. No one is forced to use an invention; nor, as a rule, is it used except it offers some positive advantage over the method previously known. It is, therefore, not sufficient to merely invent, but the invention must be made of public utility. If whose education and talents enable him to devote his time to benefit others surely cannot be denied compensation for so doing. If that were to be admitted, no profession, art, or calling would be exempt. Mental property should, of all others, be amply protected. If not, where is the inducement to improve? There no doubt will be exceptional cases, where men of talent can afford to give their services to the world without compensation. The exception to the rule is the exception to the rule. It would be quite as consistent to make the medical man, the clergyman, or the lawyer give their intellectual acquisitions without reward as the inventor. Free trade in mind is an abstract idea—a mere myth; in fact, it is incompatible with our intellectual capacities. Intellectually, men are not equal.

Free trade in thought, if such were practicable, would destroy that ambition and zeal which prompts the man of superior genius and mental capacity to devote himself to the task of surpassing all previous efforts. Imagine the work of a sculptor or painter, produced after years of toil, which for its excellence commands universal admiration, being copied by anyone, and sold for the mere price of the mechanical imitation.

Invention, which improves and cheapens the production of things essential to the wants and requirements of civilised society, should be rewarded. Otherwise, why should there be protection to any description of property? It is the intellectual operations of the mind in one channel or another which alone has established the grades of society. Destroy all species of protection, and adopt the ultra-democratic idea—that free trade should be carried to these extreme limits—why, then, should one have protection for any species of property? On this principle the pickpocket takes your watch because he has not one of his own. Those who were lately convicted of making Bank of England notes no doubt thought themselves free traders in this sense. It is a singular fact, that the most noisy opponents to patents are those who are desirous of, but are not prevented from, appropriating to themselves the patent inventions of others. Why do not these invent some method of arriving at the same results? If not, why should they object to pay for that which they of their own free will use, when it is not imperative that they should do so? Surely, that which is worth having is worth paying for. That the user is benefited by the adoption of any particular invention is self-evident, or why does he use it? In all our relations of life, from the most trivial to the most important, do we not pay for the benefits received?

The abuse to which the present system of granting patents is carried may be illustrated by a case which recently came under my notice:—A person with whom I was in conversation on the subject of steel shirt-collars, he wearing one, complained how stiff and inconvenient it was, though in other respects answering the purpose, when I jokingly said, "Why do you not get some of Dr. Cartell's refined gutta percha, or add magnesia to a preparation of gutta percha; it would make a capital collar?" This person, without ever informing me of his intention, goes to a manager of a patent agency company states his discovery, pays 9s., and the provisional specification actually includes not only Dr. Cartell's preparation, but the addition of magnesia. Had I said arsenic, calomel, or cream cheese, I verily believe it would have formed part of the specification. It is the monstrous multiplication of such cases which has brought patents into disrepute, ridicule, and contempt, with those who summarily class all under the same denomination. That such a system demands a thorough reform no rational person will question.

How is this to be accomplished? The only method to meet such cases is to have a competent board of examiners, before whom the applicant should submit his claim for a patent. If found to be an original idea, or combination of ideas, the protection asked should be granted. If not, it should be refused. The reasons for such refusal being fully copied by anyone, and sold for the mere price of the mechanical imitation. If, when amended, it should be found to demand the granting of a patent, this should be allowed accordingly. It is desired by some, that if refused, the applicant should have

the option of taking out a patent independently of the adverse decision arrived at by the examiners. Such a course would be like a medical student being able to obtain his diploma independently of the examiners, after they had found him incompetent to receive it. The more rigid and searching the investigation prior to the granting of letters patent, the more valuable the patent when granted.

To point out the benefits which the public derive from inventions would be to recapitulate the introduction into this country of gas, steam-ships, the locomotive, electricity, telegraphs, improvements in nearly every department of industry, by which the few millions of England's population are enabled to supply the world; without which the production of all her operatives would not be sufficient for her own demands. In fine, invention has rendered this empire the greatest and wealthiest of the nations. Who will then, with honesty, deny to the true original inventor the only recompense—a limited protection—for his labour and time in the accomplishment of such mighty national benefits.

The whole system attendant on the obtaining of a patent, as at present practised, is a fraud and a deception on the poor inventor. There are those who make a regular business of speculating on his necessities. Many of the most valuable inventions are lost to the owner from his incapacity to meet the present enormous Government fees. There are but very few patent agents or attorneys adequate to the responsible duty they have assumed. The consequence is, that when the specification is brought before a legal tribunal it is found defective, and very often not in accordance with the ideas or intentions of the inventor. These and many more defects, consequent on the present state of the law, would be effectually remedied if a preliminary tribunal were to be instituted; no application to pass or receive a patent which did not fulfil all the conditions essential to a constituting an original and true invention—not a mere application of another's idea, or the application of an existing method or mechanical arrangement to another purpose, or coloured alteration, made in ambiguous terms, so as to mislead and confuse. Such, unfortunately, constitute too great a proportion of the patents now granted. In a word, let us have a good, strong, substantial patent, or none at all.

Beta-house, Alpha-road, N.W. R. H. COLLYER, M.D., F.R.S., &c.

THE GEOLOGICAL FORMATION OF THE EARTH.

Sir,—The subject of the internal structure of the earth is one which has been so much discussed in the *Mining Journal*, and one upon which so little has been put forward calculated to assist those interested in forming any definite conclusions, that it would be interesting to your readers to learn of any hypothesis based upon really tenable grounds. The theories that the centre of the earth is a mass of liquid fire certainly cannot be assumed to be a very tenable opinion, and that it is water is quite as bad, whilst the supposition that everything which we observe is due to electric action may equally be passed by as worthless.

First, as to the theory of internal fire; it must be remembered that, although experiments have conclusively proved the temperature increases as we descend from the surface, we know that the temperature of a furnace would be so quickly reached that there could only be a thin shell of solid matter surrounding millions of square miles of liquid fire, and we know enough of the nature of fire, if not of its composition, to conclude that if such a state of things existed the crust of the earth would be destroyed in less than an hour; for such crust would be as useless to extinguish the vast body of fire within as a sheet of tissue paper covered over a blast-furnace would be to put it out. As to the theory that the centre of our globe is an immense body of water, it will be apparent that it cannot be so, for, as water will not compress, we know that the heat which must prevail even at a few miles from surface must be so great that steam would be generated, and our poor earth would be converted into a great boiler, which would speedily be shattered in fragments to all parts of the universe, so that London might take up its position in Venus or the Sun, whilst our Australian colonies would be blown to Jupiter or Uranus, and thus become quite useless to us. To turn to the electro-magnetic theory, I am afraid I could pronounce no more favourable an opinion, for although it must be admitted that electricity is latent in a vast number of substances known in Nature, to ascribe the production of natural phenomena to that agent we should have to suppose a state of activity—that is to say, an amount of active electrical action that if on meeting a friend we attempted to shake hands with him the electric light in its greatest brilliancy would be produced at the ends of our fingers.

None of these theories, then, are tenable; and taking a combination of known facts, we require some hypothesis which shall admit internal heat many times greater than that of a blast-furnace, in conjunction with absolute solidity, and show that our notions that intense heat must produce fluidity are not necessarily correct. I have just been reading Prof. Tyndall's lectures on "Heat as a Mode of Motion," wherein an hypothesis promulgated by Mr. William Hopkins, of Cambridge, is referred to, which I think meets all the requirements of the case. To thoroughly appreciate Mr. Hopkins's assertions, there are several facts which must be considered. Prof. Tyndall demonstrates by palpable experiment that wax under pressure is more difficult of fusion than when there is no pressure upon it, and from similar experiments Mr. Hopkins concludes that the pressure upon the materials forming the interior of the earth would compensate for the increased heat, so that although the temperature should increase from surface at the rate ascertained by experiments in our deepest mines, there would still be nothing to justify the supposition that the solidity of the said materials would be jeopardised, and with this view I believe all impartial readers of the *Mining Journal* will agree.

SOMER.

Meetings of Mining Companies.

CARADON CONSOLS MINING COMPANY.

A general meeting of shareholders was held at the company's office, Austinfriars, on Wednesday.—Mr. BUCKLAND in the chair.

Mr. E. KING (the secretary) read the notice convening the meeting, and the minutes of the last were read and confirmed.

A statement of accounts for the three months, ending with costs for December, was submitted, from which the following is condensed:—

Balance last audit	£ 88 10 9
Chc. mine cost, merchants' bills, &c.	211 15 3
Nov. cost	212 8 8
Dec. cost	192 0 6=£704 15 2
Call	671 5 0
Leaving debit balance	£138 10 2

The report of the agent was read, as follows:—

March 9.—In handing you a report on the underground operations in this mine since your last general meeting, held in Dec. last, I beg to state that we have intersected the Menadue lode in the 68, and have extended on it, east of main cross-course, about 6 fms. The lode has hitherto been disordered by other small cross-courses, excepting near the present end, where it is better defined, and carries good spots of ore, and appears to be increasing in size. In the 54, a little way east of this end, we have passed over a kindly lode. We are forcing on the 68 by six men, to prove the ground referred to deeper. Going west the Menadue lode has been opened on for a very short distance, but so far it looks large and kindly. These are a cross-course some 7 fathoms west of the end, near to which, in the 54, the lode showed a promising appearance, and carried a good deal of pyrite, blende, with tin, and good strong yellow ore. Our object now is to push on the 68 west, to prove the lode in this direction. We have passed through a good branch of grey ore in the 54 east, but in the extreme end the lode is composed principally of gossan, and at present unproductive. The engine lode, in the 68 east, is 2 ft. wide, consisting of conical fluor-spar, and carries a good deal of muddle, with fine stones of yellow copper ore. The lode in this end, during the past quarter, generally has shown good indications, and looks kindly to prove more productive, especially at a greater depth. We have just commenced to drive the 68 west on main lode, to give it a fair trial under the point where we had a great deal of gossan in the 54. The engine-shaft is sunk nearly 70 fms. below surface, on the course of the lode, diagonally. I am sorry to say that we have not made such good progress as in the past three months as I could wish, having had several hindrances; and owing to the cross-courses coming in at the shaft it has disordered the wall of the lode near it, and thereby rendered the sinking difficult and rather slow. We are, however, making every exertion to sink the shaft as rapidly as possible, with a full force of men. The lode towards the bottom of the shaft is looking a great deal more promising than it did at and above the 68, and, although near the cross-course it carries good stones of ore, the best of the lode is in the western end of the shaft, a few feet from the cross-course, and where the ground is a little more settled. The main part of the lode is taking nearly a vertical direction, which I consider looks well for the next level. We shall do our utmost to reach the 80 as speedily as possible, and open on the lodes at that depth, where, from present appearances, we may reasonably expect a decided improvement. We are driving five ends on three lodes, besides sinking the engine-shaft, by nine men. All the operations are being conducted as economically as possible. With the present force the monthly cost will not exceed 2000l., including coals for the engine and other merchants' supplies.—WILLIAM RICH.

The CHAIRMAN said that the report just submitted showed the nature of the change that had taken place since the last meeting upon the Menadue lode at the 54 fm. level. They had now, for the first time, cut a good gossan lode, producing grey ore, the ground being of a most congenial character. There seemed every reason to hope that at the 68 fm. level, under this gossan, a course of ore would be met with, which, of course would materially add to the commercial value of the property.

Mr. R. JAMES had observed the agent stated that the working cost would not exceed 2000l. per month. He (Mr. James) wished to know whether it was not possible to employ a greater staff of men, and thus develop the property more vigorously.—The SECRETARY replied that at present a larger number of men could not be advantageously employed. Everything was being carried on in the most economical manner. There were nine men engaged in sinking the shaft, and five pairs of men were driving on three different lodes, the ends of which were promising. For the first time during the development of this property the lode was producing rich stones of ore in the shaft sinking on the cross-course. It was the unanimous opinion of several practical agents that at the 80 fathom level, a good course of ore would be found some few fathoms east of the engine-shaft. The Menadue lode, at the 68 fm. level, was a flat-slate specimen, considering the large gossan lode that had been cut at the 54. Before the next meeting this important point would be tested, and he trusted with success.

A SHAREHOLDER enquired if the whole of the costs had been charged up to the end of December?—The CHAIRMAN replied that every known liability due at the end of Dec. was included in the statement just submitted.

The SECRETARY stated that at the last meeting there was a balance against the mine of 88l. A call was then made of 12s. 6d. per share, and the debit balance at the end of December amounted to 138l. 10s. 2d. It was then proposed that the committee recommended that a call should be

made upon the present occasion of 15s. per share, which would provide a sufficient amount to liquidate the balance, and pay the current three months' cost. It was always more satisfactory to shareholders to find that funds were provided for coming liabilities rather than for liabilities already incurred. In answer to a question, he stated that the monthly cost for coal did not exceed 20s.

Mr. JAMES enquired the distance of the Caradon Consols boundary from West Caradon? The SECRETARY replied that the distance was about 70 fms.

The CHAIRMAN remarked that the accounts had been examined by Mr. Stauffer, and found to be correct.

The SECRETARY said that one great advantage derived from the improvement in the 54 had been the reduction in the cost of driving from 8s. to 5s. per fathom. He might, perhaps, mention that Capt. Johns, of West Caradon, had stated that the indications now presented in the 54 were precisely similar to those which were presented in the 54 presented previously to the discovery of their great bunches of ore.

The report was received and adopted, and the accounts passed and allowed.

Upon the proposition of Mr. RICHARD HAWKE, seconded by Mr. MACKENZIE, a call 15s. per share was made.

The committee of management were re-elected, with thanks for past services.

A vote of thanks to the Chairman terminated the proceedings.

CONNORREE MINING COMPANY.

A general meeting of the shareholders of this company was held at their offices, Dame-street, Dublin, on Thursday, when the following report was presented by the directors:—

"The proprietors must be well aware that, in consequence of the continued depression of the alkali and other chemical trades, arising principally from the war still raging in the American States, the sales of sulphur ore (the staple produce of these mines) are yet but trifling, and at correspondingly low prices. While this state of things exists the directors have, in pursuance of the determination expressed in their last report, deemed it their best course to apply themselves energetically to the development of the great quartz lode, and the other copper resources of the mines.

The managing directors' report shows that considerable progress had been made in the chemical experiments for the extraction of copper from the ores, as well as in their mechanical dressing, so much so that very satisfactory results, commercially speaking, may be reasonably expected, such as is expressed in a previous report as will make the company to some extent independent of the trade in sulphur. In carrying out these reports, Mr. W. G. Roberts, their consulting engineer, and Mr. George W. Maynard, a practical chemist from Clausthal, in Germany, have been most skilful and indefatigable in working out the several laborious and intricate chemical experiments necessary to arrive at a practical result; and in the mechanical dressing of the ores, Capt. W. Bishop, a Cornish miner, highly recommended to us, has applied himself diligently to the raising and preparing them for market. The economical management of the affairs of the company consistent with good maintenance of the machinery and works, has the unceasing attention of the directors; and they look forward to further and considerable diminution of the expenses of the mines. The Companies Bill having become law since we last met the shareholders, the registered office of the company was, at the last moment, transferred from London to Dublin, whereby a considerable saving of expense will be effected. In accordance with the intention expressed at one of the late meetings of the company, the directors have issued to the shareholders, at par, the remaining 10,000 (10) shares of their capital.

The period for which, under the Articles of Association, the office of managing director of the company was held by Mr. Markham Brown having expired, the directors cannot close this report without recording their great obligations to their esteemed colleague, not only for his judicious and energetic management of affairs during the period he held that position, but for his hearty co-operation with the directors since his arrival in Dublin, and for his happy to say, that during his present visit to England he has, notwithstanding the present stagnation in the sulphur ore trade, lately sold for the company a considerable quantity of the sulphur ores at present in stock, and has made arrangements which they hope will lead to further business."

SCOTTISH AUSTRALIAN MINING COMPANY.

The fourth annual general meeting of proprietors was held at the London Tavern, yesterday.—Mr. WILLIAM HENRY DICKSON in the chair.

The notice convening the meeting having been read,

The report of the directors stated that since the last meeting strenuous and unremitting efforts had been made to reach and cut through the lode in the Good Hope Mine at the depth of 30 fms.; to open and lay out the Cadangulung Mine, and to begin to develop its resources; to erect smelting-works, to smelt the ores of the Cadangulung Mine, and of the mines belonging to other parties in the same district; to form a branch line of railway; and establish a colliery near Newcastle; and so far as opportunities might occur for doing so, to make arrangements calculated eventually to the good properties of the company to favourable account. As regarded the Good Hope Mine, it was stated that the lode at the 30 fms. level (although not nearly so rich as it was at the surface) had much improved from what it was at 15 fms. nearer to its outcrop. Capt. Holman specially reports that near to where the lode is cut at the 30 second lode joins and falls into it, and from this circumstance, as well as from the fact that the lode had much improved from the 15 to the 30, he is inclined to expect a favourable result from further operations at deeper levels. Referring to the Lambton Colliery, the report stated that the manager had secured leases of 1240 acres of coal-bearing land, near the west side of the town and port of Newcastle, for which a yearly rent of 1s. per acre was to be paid until the same shall be converted into a freehold, and which conveyed as regards the whole or any part of 900 acres thereof, may be effected at any time at a cost of 2s. per acre; the remaining 280 acres, being part of the land set apart by Government as "Newcastle Town Pasture Reserves," cannot be alienated in favour of any occupant in fee simple, but must remain a leasehold property, subject to the yearly rent above mentioned. The nearest part of this coal field is situated within a mile of the Great Northern Railway, which is a line from Newcastle to East and West Maitland, and is in the hands of and worked by the Government. Throughout the greater part of these 1240 acres the well-known Wallsend seam, ranging from 10 to 12 feet in thickness, has by boring been proved to exist. The coal is 29 feet from surface, and the seam is fully 11 feet thick. The colliery of the company calculates that 10,000 tons of coal will be sold during the first year, and 100,000 tons during the second, from the working of the pit already opened. The Dartmouth Colliery property is considered an eligible field for operations. The Cadangulung Mine produces ore which yields a very good quality of copper; the brand marked upon it is the word "Cadia." It is in the nature of all mineral deposit to vary more or less in richness at the different points sunk upon or driven into; and this has been found to be the case, so far, at the Cadangulung Mine. The best result obtained has been from a batch of ores of 107 tons, which were sampled and assayed in September last, and averaged 17½ per cent. for copper. It would be premature to pronounce a decision upon the prospects of the mine until the lode has been cut at a greater depth, and a more complete exploration of it has been made. The lode is auriferous, but too poor for gold to pay for working. The smelting-works have been erected on an economical and moderate scale, on a piece of freehold land, consisting of 25 acres, which formed part of the Cadangulung property; the price paid for the land by the company was 50s. The smelting-works are erected on the creek close to the Cadangulung Mine, and are so arranged as to readily admit of extension from time to time as their enlargement may be found to be requisite either to smelt the ores of this company or those that may be sent to them to be smelted from mines belonging to other parties in the same district. The smelting-works consist of two ore furnaces, one roasting furnace, and a refinery, with the other same operations on a scale necessary to the efficient carrying on of smelting operations. The present works are quite equal to the smelting of 50 tons of ore per week, or 2600 tons per annum. With regard to the present financial position of the company, the report states that in order to carry on the operations at the Cadangulung Mine and the Colliery, and to provide material for the railway, it became necessary to make a call on the shareholders, which was payable on Dec. 15 last. The balance of funds shown to be in hand in London by the account now presented is 1201s. 8s. 1d. There has since been received:—Deposits on a few of the 40,000 additional shares, which were not paid when due in March last, with interest thereon, 42s. 9s. 7d.; on account of the first call beyond the 47s. thereof, shown in the statement of affairs to have been paid before Nov. 30 last, 13,615s. 17s. 6d.; sundry other receipts—viz., transfer fees, interest, &c., 20s. 7s. 8d., 18,811s. 2s. 10d. Out of which amount the following payments have been made:—Temporary loan paid off, with interest, 4018s. 2s. 10d.; drafts by the superintendent on the company in London, 3500s.; materials for railway—viz., rails, fishplates, chairs, keys, bolts, nuts, spikes, &c., 3374s.; materials for colliery—viz., underground rails, tub-wheels and axle-timber bars, tools, &c., 556s.; sundries, 422s. 11s. 4d.; leaving a balance in hand of 301s. 3s. 6d. It is anticipated that another call of 2s. 6d. per share will shortly be found necessary.

The CHAIRMAN said that all the information possessed by the directors with respect to the position and prospects of the different portions of the company's property had been communicated in the report, which had been in the hands of shareholders some days. That report pointed out that as regards the Good Hope Mine it had been thought more desirable, for the present, to take the staff from there, and employ it upon the Cadangulung Mine, which was being prosecuted with all the vigour they were able to bring to bear upon it. The precise position of the works at that mine was freely set forth in the report, as was also the condition of the smelting works. With regard to the coal, they were able to speak with the greatest confidence, for there seemed to be but one opinion, that they possessed the best coal in the colony, and the collieries were admirably situated as regards the port of shipment; consequently, attention would be particularly directed to the development of the company's coal property. All the material for the construction of the railway was sent out some time since, and the road, it was expected, was ready to receive it in January last.

Mr. WARD enquired the probable cost of working the coal, and what profit it was estimated would be realised by its sale?

The CHAIRMAN said that at present the directors were hardly in a position to give a decided answer upon that point, but from the general information they possessed, it might be safely stated, he thought, that the coal could be sold at a good profit, and that the demand was greatly increased. He might mention that Mr. Morehead estimated that the expenses of working the company's colliery would be less than any that had yet been established in the colony. It would be seen from Mr. Morehead's letter "that the best efforts were used to bring the colliery into working order, and its produce into the market, with as little delay as possible." In another letter, dated August 22, Mr. Morehead states—"I trust the board will freely go along with me in judging no outlay calculated to promote true economy and efficiency in carrying out this undertaking. Our outlay, even in adopting this system to the fullest extent, will fall greatly short of that which has been incurred by any first-class colliery in existence in the colony, and returns are not, I anticipate, very distant." In October, Mr. Morehead further states—"Operations at the colliery proceed in a very satisfactory manner, and I continue much pleased with Mr. Croucher's management, and with our prospects in connection with this very promising undertaking, than which I do not know anything in the shape of mining enterprise that contains less of the speculative element. There will, doubtless, be great competition in the coal trade in New South Wales, but the best situated and the situation and quality of our coal place us in the very first rank in these respects. The engine, I am glad to say, has been completed, and dispatched to the colliery, and will be erected and set to work with all practicable speed. All this is, of course, most important in its bearing on the prospect of early returns to the shareholders. Since I last wrote I have been again to the colliery, and was pleased to find a considerable quantity of very fine coal at bank. I fixed a situation for the township of Lambton on the intended township. The present price of coal at Adelaide was 30s. per ton. The SECRETARY, in answer to a question, stated that it had been estimated that the cost of raising the coal and putting it on board at Newcastle would be about 8s. per ton, while the selling price there was 16s. per ton.

The CHAIRMAN said it might be fairly assumed that the extreme cost of raising would certainly not exceed 10s. per ton. He then moved that the report of the directors be received and adopted.

Mr. J. BECHER seconded the proposition. Mr. TREWEN urged upon the directors the desirability of developing the coal property in the most vigorous manner practicable.

The CHAIRMAN, in answer to a remark, stated that the directors had always endeavoured to keep down the expectations of the shareholders, but he considered the board were bound at all times to place before the shareholders every item of information received from what they believed to be reliable sources. Mr. Morehead was a man far beyond anything like suspicion, having given for a series of years the most unqualified satisfaction in other quarters. His (the Chairman's) own opinion was, that if there was one man in the world more reliable than another it was Mr. Morehead.

A SHAREHOLDER thought the directors should be in a position to give some reasonable estimate as to the cost of raising the coal, and suggested that the shareholders should be called together often than once a year.

Mr. COBBE thought a mistake had been made in erecting smelting works close to the mine before the shaft had been sunk sufficiently deep to ascertain the permanent value of the lode. He considered the directors must exercise great caution in the control of the expenses at the Cadangulung Mine; indeed, he would suggest that the expenditure should be reduced to the cost of sinking the shaft.

The CHAIRMAN said it must be borne in mind that there were other ores to smelt besides those returned by this company. The last remarks of Mr. Cobbe were an echo of the instructions that had been sent out to the colony. The first quantity of 12 tons of ore had been smelted, and there was every probability of the quantity being increased to 40 tons by January last. With regard to the railway, he might state that it would be about 2½ miles long, and would form a junction with the Great Northern.

Mr. ADAMS enquired what was the proposed future policy of the directors? The CHAIRMAN replied that the future policy was to suspend operations at the Good Hope, and vigorously prosecute Cadangulung Mine and the collieries.

After some further discussion, the report was unanimously received and adopted.

The retiring directors, Messrs. J. D. De Vitre and K. How, were re-elected; and Mr. C. Whitham was re-appointed auditor, and the directors should be held half-yearly.

A unanimous vote of thanks to the Chairman and directors was passed, which terminated the proceedings.

GREAT NORTHERN COPPER MINING COMPANY OF SOUTH AUSTRALIA.

The shareholders of this company re-assembled at the London Tavern, on Monday last, at two o'clock, to receive from the directors the result of the poll which was demanded by Mr. Adamson on the previous Thursday, after the proposal for an adjournment, made by Mr. Sangster, was declared carried by a show of hands. Mr. Cope occupied the chair, in the absence of Mr. Donaldson. He stated that proprietors holding 238 shares had polled in favour of the adjournment, and 21,500 shares against it, consequently the motion was lost. Mr. White hereupon, on the part of himself and the two other members of the late committee of investigation, read a protest against the legality of a ballot being taken on the question of adjournment. The solicitor stated that the course adopted by the directors was regular and legal, and the Chairman stated that the opinion of eminent counsel had been obtained, which fully confirmed the views of the solicitor. The original motion, that the directors' report be adopted, was then put and carried unanimously. The retiring directors were re-elected, and Mr. Adamson, of Aberdeen, was added to the board. Mr. Trenow, the auditor, was likewise re-elected, and Mr. T. B. Jones, a professional accountant, was nominated to act with Mr. Trenow. In answer to questions, the Chairman mentioned that the expenses of management in London had been further reduced by 300s., and about the same amount in the colony. The meeting then broke up.

WASHING ORES AND MINERALS.—A simple form of apparatus for washing ores, minerals, and metalliferous earths, whether of the richest or poorest descriptions, has been patented for Messrs. Baron, of Paris; it consists in the employment for that purpose of a long tapered vessel, partially filled with water, open at the top, and provided near its surface with a corresponding shaped trough, slightly inclined downwards toward its narrow end. This trough receives a longitudinal vibratory motion from a crank or eccentric on the main actuating shaft of the machine, and it also receives a simultaneous rocking motion in a lateral direction. The bottom of the vessel has a number of elated apertures for removing the deposit that collects thereon, which are nearer together as they approach the narrow end of the vessel, at which part they are separated by double inclined partitions. The feeding hopper is provided with a rose jet at its discharging mouth, which directs a number of fine streams upwards into the minerals or ores contained therein, such minerals or ores having been previously crushed. The richest ores or minerals pass down the vibrating trough, and fall over at the end, being thus deposited at the narrow end of the vessel, whilst the refuse matter and poorer particles are shaken over the sides of the trough before arriving at the end thereof, the poorest being shaken over at the top end of the trough, and the better descriptions lower down, so that each aperture will give a richer product as they approach the narrow end of the vessel. The water in the vessel is kept at a level that is to say, it is not changed constantly by having a current flowing through the vessel, as is the case in other washing machines.

REFINING SLAG.—An invention has been patented for Mr. Emil Langen, of Siegburg, Prussia, which consists in an improved mode of removing from the slag its vitreous, stony, and brittle particles, and employing the material thus improved for manufacturing hydraulic or other mortars, bricks, stones, slabs, ornaments, and other articles. In order to remove the vitreous particles he simply causes it to be completely surrounded with water as it flows from the furnace. By coming in contact, and being completely surrounded with water, the slag, flowing as it does at a high temperature, suffers decomposition, and causes a sudden development of steam. The parts of the slag which come first in contact with the water immediately form a crust, and the water penetrates deeper and deeper until the entire mass of slag is soaked through, and a development of steam from all parts of the slag, takes place continually. By the effect of the water or steam the combination of sulphur, which is present in the glowing particles of the slag, becomes decomposed, in consequence of which the surface of the single particles become macerated all over, and are thereby very susceptible for a future combination with cement or lime. When the development of steam has ceased, the slag, instead of being a glassy, brittle, or stony mass, is formed into a quantity of porous particles, admirably adapted for future combinations. The fine particles of this improved material form excellent sand for mortar, which, amongst other purposes, may be used for cementing the larger pieces of slag to produce artificial stone, slabs, or ornaments. Different kind of slags give various colours.

NAIL-MAKING MACHINERY.—Mr. J. Barclay has completed his patent for improvements in machinery for the manufacture of nails; his invention consists:—1. In the mode of heading and pointing nails made from wire. 2. In the mode of cutting off short-pointed strips, the length of the nail, from sheets of metal, and in the use of pressure-rollers for consolidating the said short strips and making same into nails. To manufacture nails from wire, the patentee employs four levers—two working horizontally, and two vertically; the end of each pair of levers operate so as to squeeze the wire to a point, and are operated upon by slides and rollers. The heading operation is performed by a sliding heading tool; a revolving plate, fitted with spring sliding holders, takes the pieces of wire from the heading tool, and causes them to pass over the point of the heading tool. Expanding dies, operated upon by a screw for opening and closing the same, are employed to head the wire whilst it is advanced and cut off to the desired length to form a nail. He also proposes to employ a circular piece of metal or table suitably held, and capable of being moved about its axis of motion, so that, supposing a strip of sheet metal of the width of the required length of the nails to be made therefrom to be placed on the table, and the table to be moved about its axis of motion by suitable self-acting mechanism, the said strip, instead of being presented square to the cutters, is inclined thereby sideways, and then cut; the strip is afterwards moved in an opposite direction, and again cut, the effect of which is to cut strips of a wedge form instead of with parallel sides, or, in other words, to cut the strips pointed. The heading operation is effected by a bent lever operated upon by a cam, each nail being held by expanding dies operated upon by sliding pieces of metal, formed with inclined or wedge-shaped ends. Each strip of metal cut off the main strip falls upon a vibrating piece of metal formed with two sides, which throws the cut pieces alternately down two channels formed in a casting, thence they pass between the pressure rollers before referred to, where they get consolidated, and finally are taken hold of by the expanding dies, and held thereby during the heading operation. The above machinery is designed to be double-acting—that is to say, whilst one nail is being headed on one side of the machine, the other side of the machine is discharging a finished nail.

MOULDING SHELLS AND BULLETS.—A machine has been invented by Mr. W. H. Ward, Auburn, New York, capable of delivering about 6000 bullets per hour of any pattern, form, and size, was some time since introduced both in the United States and in this country, and nearly seven years' experience has proved that the machine accomplishes all that was claimed for it. The mechanism is as near as may be perfect, and the machine has the very great advantage that it wastes nothing, is not liable to get out of order, and requires very little attention in working. The shell-moulding machine, patented by the same gentleman, has also been most favourably reported upon by the naval authorities of the United States, and the Secretary of the Navy has issued a circular, by which the machine may be judged of from the fact that the shells are found to be in every way applicable as spheres for supporting and rotating his self-centring turn-tables, which we have already described.

EXPERIMENTS ON ARMOUR-PLATES.—Armour-plate experiments were resumed at Portsmouth on Monday last, under the superintendence of Capt. R. S. Hewlett, C.B. The plates tested on this occasion comprised three of 4½ in. thickness of metal from the Elswick Company—two of iron and one of steel, all three made under the steam-hammer, but with the additional novelty attending the steel-plate, that after its manufacture it had been re-heated to an annealing heat, and then cooled in oil. There were also two hammered plates at 5½ in. thickness of metal from the Thames Ironworks and Shipbuilding Company, one of which was a sample plate for the *Minotaur* iron frigate—building for the Government by the company, and the other was a plate for the *Royal Sovereign's* turret, bent 2½ in. out of a straight line, when heated by the wedge-process. The Elswick plates failed utterly in offering resistance to the shot from the 68-pounder gun, one iron-plate being destroyed by a single shot, the other by two shots, and the steel-plate being broken up in five separate pieces by two shots. The diameter, depth, and general character of the indentations from the shot on the two iron plates were of the ordinary description, but those on the steel plate were considerably less than what is made by the shot on iron plates, the diameter of the indentations in this case being only 6 in., and their depth only 1½ to 10 in. The plate possessed all the required hardness, but also the fatal fault of brittleness. It was made from the best Sheffield steel. The two plates from the Thames Ironworks proved to be of an unusually excellent quality, considerably above the average of good A2 plates. It is a remarkable fact in connection with the cast-plate for the *Royal Sovereign* that there were no cracks or openings in the metal after it was bent; and even when the plate was broken eventually across its back, in a known weak part of the forging, by the severe pounding which it received, the metal did not open with the curve, but across it. This plate received five shots in an irregular triangular space, 1 ft. by 1 ft. 3 in. and 10 in. Three of these shots struck in a space of 3 in., measuring from centre to centre of the extreme indentations. There was no penetration of the plate in any part by the shot, nor was any part of the metal detached from the main body. The other plate, made by the Thames Company for the *Minotaur*, received seven shots in a space of 2 ft. 6 in. by 2 ft., and three of these were on the lower left edge, beating the edge of the plate partially into the ship's side, but without any actual penetration, or without any part of the plate being thoroughly separated from the main body. The shot of the arc within which the three blows struck measured 1 in., and the depth of the arc was 12 inches.

Mining Correspondence.

BRITISH MINES.

ATLAS.—J. Warren, March 11: The 35 fms. level is now in course of driving both east and west of the shaft; the lode in the western end is 16 in. wide, and still continues to improve in size and value, it now being worth 6s. or 2s. 6d. per ton; the lode in the eastern end still remains small, and poor for tin, but gives every indication of a speedy improvement. In sinking the eastern winze we have this week met with a cross-course about 2 ft. 6 in. wide, and has greatly improved the lode here in the bottom, which looks well for the 35 east. Since my last report I have put a pair of men to sink a winze in bottom of the 25 west, and I find the lode at this point to be 18 inches wide, producing good work for tin throughout. You will see from the above that the prospects of the mine are more encouraging than they have been for some time past. Our parcel of tin will be in the hutch by Friday, when we hope to send it to market. F.S.—The directors' gift in commemoration of the Prince of Wales' wedding-day was applied to a dinner for all employed at the mine, and the whole affair passed off with the best order.

BEDFORD UNITED.—J. Phillips, March 10: The stope in the 130 west are worth 4 tons of ore per fm. The lode in the 115 west is 18 in. wide, producing a little saving work. Rundle's and Lang's stopes, in this level, are worth respectively 4 tons per fm. The stope in the 103 west are worth 4½ tons per fm. The lode in the 50 west is unproductive. The stope in this level are worth 2 tons per fm. No alteration has taken place in the 58 east. The same remark will apply to the 47 west, on south lode. The stope in the 47 and 35 east are yielding 2 and 2½ tons per fm.

BOSWORTHEN.—J. Daniel, March 12: The deep adit is driven west of Harvey's shaft, on Bosworthen lode, 33 fathoms; lode 4 feet wide, saving work for tin throughout, and promising to improve shortly; ground much easier for driving than when last reported; price 35s. per fathom. The shallow adit is secured 40 fathoms west from Harvey's shaft. We intend as soon as we have cleared to end to commence sinking a winze in the bottom of this level for ventilation. On Cairns lode the shaft is sunk 7 fathoms from surface. No change to notice in the character of the lode. We are preparing to commence dropping the pitwork, and shall soon be in readiness to put the engine to work.

BRONFLOYD UNITED.—J. Lester, March 12: Settings for March: The 40, to advance west on the north part of the lode, by four men, at 7s. per fm.—value from 25 to 30 cwt. of lead ore per fm.; to drive east of winze, by four men, where we have cut further south than before, and where we find the lead continuing of equal value with the western end, quite 25 cwt. of lead per fm.; the stope over this level, to six men, at 60s. per fm., value about 25 cwt. per fm. The men formerly working in the 27 are now sinking a winze in the 40 to six platform for stopes.—Engine-shaft: The nine men sinking below the 40 are making good progress; the shaft is going down in the south part of No. 4 lode, it contains a mixture of ore, but not sufficient to value. The drawing-machine acts well, and we shall sample 50 tons of lead next week.

BRYNTAIL.—J. Roach, March 12: We have a stiff floor ground in the new engine-shaft for sinking through, but we are making fair progress in it. The water does not impede the work much, therefore we are still drawing it by tackle. I intend to remove and fix the horse-wheel on the new shaft in the course of a few days. The ground has been excavated for the round, &c.

CAMBORNE CONSOLS.—Wm. Roberts, March 10: Tutwork Setting on March 6: The 50 fms. level cross-cut to drive north by four men, at 6s. per fm. The 50 to drive east, on the caunter, by four men, at 6s.; the lode is 1 ft. wide, producing about 1 ton of ore per fm.; the same level to drive west behind a point of horse by four men, at 3s. per fm.; here the lode is 1 ft. wide, producing 1 ton of ore per fm. The 20 west, on the north lode, by four men, at 5s. per fm.; the lode in this end is 1 ft. wide, at present unproductive.

CARADON HILL.—F. Pryor, Jas. Williams, March 6: We are still pushing on the adit cross-cut north of Page's shaft, on the cross-course, with all possible speed; the ground is favourable for progress; set by four men, at 3s. per fm., but no lode nor branch has been met with in the past month. Set the adit level to drive east of Page's shaft, on Harvey's lode, by four men, at 9s. per fm.; the lode is very promising, principally gossan, with stones of black ore.

CLARA UNITED.—W. Barbary, J. Lester, March 11: Settings for March: Llywernog: The cross-cut, south of engine-shaft, at the 36, to six men, to pay all costs, including drawing, &c., 5 fms., or cut the wheel-pit lode, at 4s. 15s. per fathom; driven last month 5 fms., now extended in 23 fms. 9 in. We reported that 4 fms. south of the new or caunter lode, having intersected another lode, we have now cut 16 feet across it, but have not yet reached its south wall; the part passed through is composed of clay-slate, friable quartz, and mica, and is intersected with lead ore, about 12 fathoms east of the cross-cut. The 30 to drive west of the cross-cut, on the caunter lode, to pay all costs, including drawing, &c., by two men, 1 fm., at 5s.; the lode is 3 feet wide, looking very promising, and is yielding some good work. We have fixed our new pitwork, which is doing exceedingly well, and we expect the water will be in for a day or two, when we shall soon be ready to commence sinking the engine-shaft below the 36.—Clara Shaft: The 32 to drive south, by four men, to pay all costs, 1 fm., or cut the lode, at 6s. 10s. Surface operations as usual.

COPPER HILL.—J. Pugh, March 12: I have this day inspected this mine, and the following are my reports:—The engine-shaft is sunk on Paddon's lode as deep as the 80; this level is driven south and cut Mitchell's lode, and driven east about 4 fathoms; lode 6 ft. wide, spotted with ore; driving at 18s. per fm. The 70 is driving east from cross-cut; lode 3 ft. wide, producing good stones of ore throughout. In the 70, driving west from Cross's winze, the lode is 8 in. wide, producing stones of yellow copper ore; price for driving, 12s. per fm. The distance between these two 70 ends is about 8 fms. You must bear in mind that the distance from Cross's winze to East Wheel Basset boundary is only from 10 to 12 fathoms. These are all the productive bargains in this part of the mine; the chances for discovery are very meagre.

CRAIG YVY.—Capt. Thomas, March 9: In driving north in the 70, you will be much pleased to learn that we are getting muddle, capel, killas, and yellow copper ore of a good description; indeed, a most kindly-looking lode for producing a large quantity of mineral in the next level—the 80, to which point I am pushing on as fast as possible; should any further improvement take place in opening upon the lode I will inform you without delay.

CROWAN CONSOLS.—J. Seymour, March 11: The masons are still progressing very satisfactorily with the engine-house; it is now 3 ft. above the cylinder-bed; the bed for the cylinder is completed, and the greater part of the walling for the engine is done. The carriers have brought home nearly all the stone from Penelodown Consols shaft, we have now about stone enough to complete the walls of the house, and are raising good stone from our own quarry for the stack and boiler-house. The engineers are getting on well with taking out the engine; the carriers will commence bringing it home to-morrow. I have let the old burrows throughout the sett to the tributor, for himself and sons to pick over.

CUDDRA.—F. Puckey, E. Dunstan, March 12: We have no alteration to notice in any part of the mine since our last weekly report. Walker's shaft is still sinking below the 90, in the killas under the lode; ground favourable for progress. We are driving the 90, west of the engine-shaft, in the killas under the lode; the 75 west lode has been taken down in the end, or either of the stopes, since the settling-day, which was Saturday last.

CWMBRANE.—March 12: In the new shaft sinking below the 30 the lode is 4 feet wide, and producing 1½ ton of lead per fathom. In the winze sinking below the 30 the lode is 3 feet wide, and worth ½ ton per fm. The 30 driving west, on Thomas's lode, is producing good stones of lead. The winze sinking below the 20, on caunter lode, producing 6 cwt. of lead per fm. No alteration in the tribute pitches.

DALE.—R. Nines, March 12: Having found it necessary to put in an extra dam, to raise some water into one of the cisterns, we are, therefore, scarcely ready to work the machinery to-day, but, notwithstanding, I expect to have the water out and the sinking commenced by the time I stated in my last report.

DEVON AND CORNWALL UNITED.—T. Neill, March 10: George and Charlotte: In this part of the mine there is no change to notice.—William and Mary: We continue sinking the engine-shaft by the side of the lode, and also the driving the 22 west. We have one stope working in the bottom of the 22 west; the lode is producing from 4 to 5 tons of ore per fm. The stope in the back of this level produces from 3 to 4 tons per fathom. We have commenced sinking a winze in the 22 east of shaft, but as yet we are sinking by the side of the lode. No alteration in the 22 east. There are two stopes working on the 10; the lode producing 4 and 5 tons of ore per fm.

EAST BEAM.—J. Webb, March 11: We have taken down some of the north lode in back of the 20, and find it fully 6 ft. wide, with tin throughout. This lode in both ends is of the same size and character as in the back; the ground is easy, and the back of the lode can be stope for 25s. per fathom. If this lode continues as at present, which I believe it will (having an intersection with the south about 20 fms. eastward), it will yield much tin. We shall now commence to cross-cut through to the south and to the Great Beam lode, and I hope in about 15 to 18 days to ascertain the respective values. We are busy affixing stamp-heads to the engine, and have a difficult time of it; indeed, I have not seen such a promising young mine for many years.

EAST BRONFLOYD.—C. Williams, March 11: The lode in the stope east of engine-shaft is yielding a fair amount of good quality ore for crushing. The lode in the stope west of shaft has become poor, still yielding a little ore, but not to value. In the cross-cut north, in the bottom of the engine-shaft, the lode is very wide, and now yielding 20 cwt. of silver ore per fathom. The engine-shaft is progressing well. All the surface work is being carried on regularly, and the machinery is in excellent order.

EAST CARADON.—Jas. Secombe, March 11: Caunter lode: The 50 east is worth 8s. per fm.; the 60 east, 15s.; the 70 east, 90s.; the 70 west, 20s. per fm.—New Lode: The 60 east is producing saving work. The 70 east is worth 15s. per fm. The 70 west is worth 8s. per fathom.

EAST CARN BREA.—T. Glanville, J. Scholar, March 11: In the 60, west of the cross-cut, the lode is yielding 2 tons of ore per fm. In the stopes, 7 ft. above the back of the 60, the lode is worth 30s. per fm.; price for stoping, 35s. per fm. In the 50 west the south lode is yielding 1 ton of ore per fm. In the western shaft the lode is yielding 3 tons of ore per fm. The other parts of the mine are without alteration to report on.

EAST CLONAU (Gold).—E. Roberts, March 10: St. James's lode, in No. 2 level, has improved in appearance and size since my last, being fully 5 ft. wide, of a highly promising character for producing gold, &c. I can assure you the more I see of this lode the more I like it. The cross-cut north of this level is extended 4 fms., through bargains of quartz, spotted with copper. The ground is moderately easy for progress.—St. John's Lode: I have this week ordered the men to drive alongside of the lode, and by so doing, I hope to be able to make greater progress. I have nothing this week to report respecting the lode.—Nos. 1 and 2 St. David's Lode: I have no change to report to you. The lode continues much the same as for some time past. I will send you the cost-sheet for the month ending Feb. 25.—St. David's: No. 1 lode has been sunk 4 ft., by T. Ellis, W. Jenkins, W. Griffiths, and W. Pugh; No. 2, 3 ft. 6 in., by R. Jones, R. Pugh, W. Williams, and T. Davies.—St. James's No. 2 lode, 5 ft., by J. Parry, W. Owen, R. Williams, and D. Richards.—St. John's, 2 ft. 6 in., by H. Parry, E. Humphreys, R. Pugh, D. Roberts, D. Tarrett, and J. Moss.—St. James's cross-cut, 1 fm. 1 ft., by R. Richards, E. Richards, O. Williams, and E. Williams.

EAST DEVON GREAT CONSOLS.—T. Neill, March 10: In the 70 west we have a little lead ore. No change to notice in the 40 north. In the western part of this sett there is an adit level driven 40 fms. on the Devon Consols lode, and which has the same bearing here as where their lode proves productive. In this drive for 20 fms. long the lode is poor, 1 to 3 ft. wide, composed of gossan, spar, frian, muddle, and a little black copper ore, a very promising lode; and to make a trial of it we have commenced sinking a winze in the bottom of the level, and hope good results will attend this operation.

EAST PROVIDENCE.—T. Uren, March 11: There is no particular change in this mine since my last report. We are making fair progress with the sinking of Boorman's shaft below the 60. We are also driving the 60 west by six men, at 9s. per fm.; in this end we have about 15 fms. more to drive to intersect the great Crookan lode, where we expect to open up good tin ground.

EAST JANE.—J. Secombe, March 7: The following bargains were set at our public setting-to-day:—The 14 to drive north on course of lode from western shaft, by four men, at 2s. 10

HOLLOWAY'S KIDS—THE LIVER, THE STOMACH, AND THEIR AFFLICTIONS.—Alterations of temperature, muggy weather, a troubled mind, sedentary habits, excesses of the table, and a gay, reckless mode of life, exert the most deleterious influence over the liver and stomach. When once these organs are fairly out of gear, the consequences are almost inevitable. The blood is vitiated, the constitution is such that the system is deprived of the proper functions of two of its noblest organs soon given way, and diseases quickly follow, when, if neglected, the worst consequences will inevitably result. If a course of Holloway's celebrated pills be persisted in, the blood will again be purified, the liver and stomach be restored to their normal condition, and a certain cure for all disorders of the liver and stomach.

MINERS' ASSOCIATION OF CORNWALL AND DEVON.

A meeting of the Miners' Association of Cornwall and Devon, which had been called by the President, Mr. J. F. Basset, of Tehidy, was held in the Town Hall, Camborne, for the purpose of taking into consideration the best means of improving the funds, and of receiving suggestions for the carrying on of the association in a more effectual manner. Mr. Basset occupied the chair, and the following were present:—Messrs. Charles Fox (the late President), F. Trevithick, R. H. Pike, T. Hutchinson, Walter Pike, Reginald T. Grylls, A. E. Paul, H. Cunneen (Heiston), Capt. Tonkin (Dolcoath), Pearce (ditto), Wilkins (Basset and Grylls), Pope (Wheal Basset), W. Roberts (West Basset), Tredegar (Great Work), Bryant, Garby (East Pool), and Richard Pearce and Charles Telle, of the Miners' Association. Letters were read from Mr. J. St. Aubyn, M.P., Mr. R. Hunt, F.R.S., Rev. Canon Rogers, Dr. George Smith, Mr. Thomas Garland, Mr. John Hale, Capt. Charles Thomas, Treguise, and others, explaining why they had been prevented from attending the meeting, and expressing their lively interest in the welfare of the association.

The CHAIRMAN explained that the meeting had been called with the view of endeavouring to increase the funds of the association, which, as was frequently the case with similar institutions on their first establishment, were in a rather low position, and that at all commensurate with the importance of the objects sought to be attained. He hoped that the matter would be warmly taken up by the miners in the various districts, and that they would contribute liberally towards placing the association in a more flourishing pecuniary position, and of thus increasing its efficiency and usefulness.

Capt. Tonkin next addressed the meeting at some length on the subject of the education that was most suitable to miners. He considered that the ordinary schools now in existence in the county could not impart that kind of information necessary to the working miner, and that the association was eminently calculated to supply this deficiency.

Capt. Wilkins followed with some similar remarks; and the meeting was afterwards addressed by Messrs. Reginald Rogers, R. H. Pike, Charles Fox, Almond E. Paul, and H. Pearce, who pointed out the importance of the association as a means of supplying information of great value to the practical miner, and urged the desirability of mine adventurers and others interested in mining operations according to the liberal support. A resolution was proposed by the CHAIRMAN, seconded by Capt. Wilkins, and adopted, to the effect that managers of mines be requested to communicate with the council of the association on the best method of connecting the association with evening schools, in order that those who should become members of classes might previously have had an opportunity of obtaining such a rudimentary education as would assist them in mastering the lessons given by the association.

The TREASURER stated that several of the mines have recently subscribed liberally to the association, and it was mentioned that the very handsome donation of 50*l.* had been received from Mr. Enys towards its funds.

A vote of thanks to the Chairman terminated the meeting.

A NEW COPPER COMPANY.—Mr. Francis Pryor, at the Ticketing held at Redruth, on Thursday, said he appeared there on behalf of the Penclawdd Copper Company, to give notice of their intention of purchasing copper ores at the Cornish Ticketing, on the 26th inst.; and on their behalf he was quite prepared in every respect to comply with the rules of the Ticketing. Mr. Pryor said he thought he might as well add that the principal proprietor of the new company was the largest holder in the firm of Stock and Co., the lead smelters. Mr. Pryor's notice was received without the slightest opposition.

NEW PATENT BLASTING POWDER.—We have seen some most satisfactory reports upon this powder. The absence of smoke, or nearly so, is a most important consideration in mining. This, without the important saving in cost, would be a great boon to the hard-working miner, and go far in establishing its general use. In every instance where trial has been made its success appears complete.

MANUFACTURE OF IRON AND STEEL.—Messrs. Wilson, of Parliament-street, and Picard, of Lyons, have provisionally specified an invention, the object of which is to run molten iron or steel directly from a converting vessel, mounted on trunnions (or otherwise capable of rotating motion), in which it has been produced, into moulds, or into receivers placed over these moulds. The form of the receivers is such as will admit of the metal entering the moulds under a very slight pressure, and is so arranged as to facilitate the removal of the scoria floating on the surface of the metal. For the obtaining of a large casting by this system, they pour into one mould, or into a receiver placed over it, the iron or steel produced in several converting vessels by means of conveying gutters, which gutters are in communication with the converting vessels. Sometimes they make the converting vessel portable, and remove several to the mould, taking care that the pouring of one is commenced before that of the preceding finishes. By a third method the mould is made upon a carriage, which runs on a railway in front of the converting vessels, a gutter above enabling the pouring to be made continuous.

MANUFACTURE OF IRON AND STEEL.—An invention which relates to ball, mill, and puddling furnaces employed in the manufacture of iron and steel has been provisionally specified for Mr. Thos. Wright, of Coldbrook Ironworks, New Brunswick. The improvements consist in constructing or building such furnaces in pairs, or double, with a stove or chamber formed in the neck thereof to receive the metal preparatory to its being passed forward into the body of the furnace, and in applying a blast of atmospheric air to such furnaces which may be either hot or cold, as required, whereby he obtains a more uniform heat, producing a better quality of the manufactured metal, with a larger yield also, effecting a saving in fuel and a diminution of manual labour.

COAL-TAR COLOURS.—In printing and dyeing with aniline and analogous coal-tar dyes, Mr. Alex. Schultz proposes to employ as a mordant arsenious acid, or a compound thereof, and this he uses in combination with alumina. In printing he prefers to mix together arsenite of soda, acetate of alumina, and the dye then to print the fabric with this compound, and afterwards to steam it; the several materials may, however, be applied separately. In dyeing, the fabric is first submitted to the arsenite of soda and acetate of alumina, and then to the dye. Salts of antimony or tin may be substituted for those of arsenic, and acetates of zinc and magnesia may be used instead of that of alumina, but the result is not equal.

ON THE BURNLEY COAL FIELD.—At the Manchester Literary and Philosophical Society, Mr. T. T. Wilkinson, F.R.A.S., said that, in the paper upon this subject prepared by Mr. Joseph Whitaker, of Burnley, and himself, and read before the Geological Section of the British Association, at Manchester, they gave a sketch of the principal mines in this district, but they purposely omitted all mention of those whose thickness did not exceed 1 foot. There are, however, one or two of these thinner mines which may hereafter become worthy of notice, and hence he offered the present note as an addition to Mr. Hull's valuable synopsis in pp. 133-4 of his "Coal Fields of Great Britain":—

SECTION OF STRATA NEAR WORTHORNE, BURNLEY	Feet.
Strata composed principally of blue clay, followed by light metals.....	102
1.—Coal, the "China Bed".....	2
2.—Strata, consisting chiefly of grey rag and metal.....	39
3.—Coal, the bed not named, and overlaid by about 3 inches of Cannel together.....	1½
4.—Strata, composed mainly of dark rag and metal, and containing 7½ ft. of coal, the "Danby Bed".....	73
5.—Coal, the "Danby Bed".....	25½
6.—Strata, consisting of rag, light blue rock, metals, and black shales.....	126
7.—Coal, the Arrey, or Haberham Mine.....	4½

The bed (2) is the one which has been hitherto omitted; and, if of no other value at present, it may be useful for co-ordination and identification with the seams of coal in other localities.

ON THE DESULPHURATION OF IRON IN PUDDLING.—The inferior quality of bar-iron obtained from the puddling of pig-iron reduced from iron ores rich in sulphur, or even from good ores when reduced with coal containing much pyrites, is well known to ironmasters, and many methods have been devised for the desulphuration of this iron in the puddling process. Among the best of these is the addition of binoxide of manganese; still this is liable to objection as it is infusible, and thus prevents its becoming thoroughly incorporated with the iron; moreover, commercial oxide of manganese often contains impurities which possibly may be taken up by the iron in the puddling process, and influence unfavourably the quality of bar-iron produced. This subject has recently been studied by Prof. Robert Richter, of Leoben (Austria). Richter calls to mind the powerful oxidizing effect of litharge (oxide of lead), and its use to promote oxidation in many metallurgical processes. On experiment he finds that litharge will not only remove sulphur in the puddling process, but, what is equally important, it also oxidizes the phosphorus contained in the iron, thus affording a most simple means of correcting two sources of the greatest annoyance to the ironmaster. The experiments were made at the forges of Count Donnersmark, at Frantschach, near Wolfberg, in Carinthia, with pig-iron which contained so much sulphur that it was impossible to make it into puddled bar. The process of puddling was undertaken in two double puddling-furnaces arranged for burning wood. Each furnace was charged with 7 cwt. of this iron. To one of the furnaces there was added 3 lbs. of sulphide of iron and 4 lb. of phosphoric iron, in order to still further deteriorate the quality of the product. After complete fusion, 3 lbs. of litharge was added to the furnace in which the sulphide and phosphoric iron had been placed, and on thoroughly mixing this with the charge, the iron commenced to boil freely—the litharge being decolorized by the carbon. The reduced lead was immediately re-oxidized by the atmosphere, and by subsequent reduction and re-oxidation it again and again exercised its oxidizing influence on the harmful impurities contained in the iron. There was soon formed an easily fusible slag containing oxide of lead, which also exercised an oxidizing influence upon the impurities contained in the iron, while at the same time the oxides thus formed united with the slag. After an hour and a half from the time of charging, the iron was made into balls, these were shingled, and without difficulty rolled into puddled bar. In the other furnace, in which the iron was puddled in the usual manner, it was two and a half hours before the puddled balls could be taken out of the furnace, and, notwithstanding the greatest care was exercised, the puddled bars crumbled to pieces when struck with the hammer, and rolling into bar was not to be thought of. Besides this, the loss in weight when the litharge was employed was but 11 per cent., while in puddling this iron by the ordi-

nary process the loss was 18 per cent. The puddled-bar obtained from puddling with litharge proved neither hot or cold short, and was of sufficiently good quality to be forged into iron for scythes. A repetition of the experiments gave a confirmation of these results. Richter adds that in some instances the use of metallic lead may, perhaps, be preferable to litharge.

* With this week's Journal a SUPPLEMENTAL SHEET is given, in which appears Papers on Mines and Minerals of America—Sandstone Copper Mines; Mines and Mining in Mexico; Processes of Mining in South America; Mining in California—Annual Review; Quicksilver; Coal and Iron in France; Mineral Oil as Fuel; Literary Notices; Machinery for Ventilating Mines; Rope Wheels, Cages, and Tanks for Mines; Tube Protector for Multitubular Boilers; Treatment of Alumina; Manufacture of Iron; Bituminous Cement; Gunpowder; New Water-Pressure Engine; Solid-drawn Iron and Steel Tubes; The Tin Trade; Prices of Materials.

* With the Journal of Feb. 28 we gave a SUPPLEMENTAL SHEET, which contains—Processes of Mining in South America; Remarks on the Edmond's Main Colliery Explosion (paper read before the Manchester Geological Society, and discussion thereon); the Coal Mine Inspection Act and its Working—the Government Inspectors' Difficulties; the Inventors' Institute—Report of Inaugural Meeting; Rope Wheels for Mines; Miners' Association of Cornwall and Devon; the Carboniferous Rocks of Westmorland; Utilisation of Waste Products in the Manufacture of Iron; New Gun Metal; Ward's Signal Telegraph; Purification of Coal Gas; Rolling Wire and other Rods; Texture of Copper; St. Just Consols Mining Company prospectus (illustrated); Foreign Mining and Metallurgy; Prevention of Colliery Accidents (illustrated), by Mr. James Rae; Ironworks in America, &c.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, March 13, 1863.

COPPER. £ s. d.		BRASS. Per lb.	
Best selected.....	92 0 0	Sheets.....	8½d.-9¼d.
Tough cake.....	89 0 0	Wire.....	8½d.-9d.
Tin.....	89 0 0	Tubes.....	10½d.-11½d.
Burma.....	95 0 0-96 0 0	FOREIGN STEEL. Per Ton.	
Copper wire.....	0 1 0½	Swedish, in kegs (rolled) 15 10 0	
ditto tubes.....	0 1 0	ditto (hammered) 16 0 18 0 0	
Sheeting & bolts.....	96 0 0	ditto in fagots.....	17 0 18 0 0
Bottoms.....	101 0 0	English, Spring.....	18 0 23 0 0
Old (Exchange).....	82 0 0	Bessemer's, Engineers Tool 44 0 0	
		Spindle.....	30 0 0
		QUICKSILVER.....	7 0 0 p. bottle
		SPELTHER. Per Ton.	
		Foreign.....	18 0 0
		To arrive.....	18 5 0
		SING.	
		In sheets.....	23 5 0
		TIN.	
		English, blocks.....	119 0 0
		ditto, Bars (in barrels).....	120 0 0
		ditto, Refined.....	124 0 0
		Banca.....	0 0-125 0 0
		Straits.....	0 0-125 0 0
		TIN-PLATE.	
		IC Charcoal, 1st qua. p. bx. 1 8 0-1 8 6	
		IX Ditto 1st quality.....	1 14 0-1 14 6
		IX Ditto 2d quality.....	1 4 6-1 6 0
		IX Ditto 3d quality.....	1 10 6-1 12 0
		IX Coke.....	1 3 0-1 4 0
		IX Ditto.....	1 9 0-1 10 0
		Canada plates.....	12 10 0-13 0 0
		In London; 20s. less at the works.	
		Yellow Metal Sheathing.....	1b. 8½d.-8½d.
		Sheets.....	1b. 7½d.-8d.
		Indian Charcoal Pigs.....	6 12 6-6 15 0
		In London.....	
		* At the works, 1s. to 1s. 6d. per box less.	

REMARKS.—There is little or no change to report in the position of metals generally. The public holidays have somewhat interfered with business, so that there is rather less doing, but prices remain steady.

COPPER.—English manufactured in fair demand, at full prices; sellers being full of orders, will now only accept contracts for distant deliveries. Cake, tile, and ingot very firmly held, at fixed rates. Foreign in rather less demand. Sellers of Burma Burra at 94*l.* 10s. to 95*l.*; Kapunda, 96*l.*; Chili, 83*l.*; Spanish, 86*l.* to 87*l.*

YELLOW METAL in good ordinary request. Actual selling price about 7*l.* 10s. to 7*l.* 12s. per lb. for braziers sheets, and 8*l.* 10s. for sheathing.

IRON.—Railway bars rather dull of sale, at 5*l.* 10s. at the works; merchant bars quiet, at 5*l.* 10s. in Wales, and 6*l.* 5s. delivered f.o.b. in London. Staffordshire descriptions are steadily demanded, and full prices adhered to for first qualities. Swedish bars remain without alteration in price. Scotch pigs have declined to 53s. 3d., mixed numbers.

SPELTHER.—This market is a little easier. Buyers for cash can now get on at 18*l.* pretty freely for spot parcels. For arrival, May, 18*l.* 7s. 6d.; April, 18*l.* 5s.

LEAD.—English pig, ordinary soft quality, very dull, and price declined to 20*l.* 17s. 6d. WB is not in much demand, but, on account of its being very scarce, commands 23*l.* Spanish pig, 20*l.* to 20*l.* 5s.

TIN.—English in rather better demand; sellers unable, however, to obtain full prices. Foreign has still rather an upward tendency. Straits, 121*l.* to 123*l.*, three months; Banca, 124*l.* to 125*l.*, three months.

THE TIN TRADE.—Mr. N. Breebaart writes that advices dated Jan. 28 have been received at Rotterdam from Batavia. About 2000 peculs of Billiton tin for delivery end of March have been contracted for Japan, at 80 florins per pecul. According to official returns, Banca produced, in 1862, only two-thirds of that in 1861, in consequence of want of rain to wash the ore. The yield was only about 58,000 peculs in 1862, against 86,594 peculs in 1861.

NEW YORK, FEB. 27.—Prices of all descriptions of merchandise have further advanced, but they remain still out of proportion to the rise in gold and foreign exchange, and on that account are still bought for investment. There is a great deal of unemployed capital, and although it was feared at one time that the large requirements of the United States Treasury would enhance the rate of interest, there are no indications of any change in the money market visible. It has become more and more apparent that, under present circumstances, more paper currency of some kind or other is inevitable, and gold has gone up accordingly, with occasional fluctuations. It is quoted to-day 169½ per cent.; exchange on London, 189 per cent. Demand notes are within a fraction of par.

Tin has been quoted for the first half of the month at 46 cents for Straits, when the advices from England occasioned a demand for speculation, and 9000 shares have since been sold at from 47 to 51 cents. The stocks are now concentrated in comparatively few hands, and very little is offered for sale at to-day's quotation of 52 cents. Banca has been sold at 54½ c., and English at 47 c.; both kinds are held higher. We have had one importation of 5 tons English, and 800 shares are expected from the Straits direct. We estimate the stocks in first hands at 26,000 shares of Straits; 5400 shares of Banca; and 70 tons of English, equal to 2100 shares. Total in Boston and New York, 35,500 shares. The advance in the London and Amsterdam markets has not remained without influence here, as it indicates that higher figures are likely to rule for the article abroad than for some years past. The demand from China and Japan threatens to absorb the greater part of the products of the Straits, and if the reported shipment of Banca tin from London to China is followed up, by no matter how small additional shipments, it cannot fail to affect prices seriously. Our quotations are to-day 15 per cent. below the cost of importation; and, independent of the question of exchange, we look for much higher rates. The stocks are being gradually reduced, without a prospect of additional supplies.

SPELTHER.—During the last week about 400 tons of Silesian and Lehigh have changed hands on private terms, including 180 tons to arrive from Hamburg. We quote Silesian at 9½ c., and Lehigh at 9½ c. to 9¾ c. We have had one importation of 65 tons of Silesian, and there is no stock of foreign in first hands.

COPPER.—Prices have gradually advanced, but are comparatively lower than the other metals, in view of the small stocks. The sales of the last two weeks amount to 1,500,000 lbs., at from 35½ c. to 36 c. for Baltimore, and 36 c. to 37 c. for Lake. The supply of the latter kind is very limited, whilst that of Baltimore is for the moment more liberal. The Baltimore Copper Company concluded during January to buy some ore to work up with their old stocks, and they have sold about 400,000 lbs. The decline in England has had no effect here. The high rates of exchange have operated against importations of domestic copper even from Europe, although we think it not unlikely that some Lake may still be shipped to this market. In the meantime, about 120,000 lbs. have been cleared for Hamburg during the past month, and we believe another small lot of Minnesota is being shipped.

LEAD.—There has been a good demand for manufacturers, mainly supplied from second hands, as importers could not offer their stocks at the prices paid. The sales of the last fortnight are about 1200 tons of foreign, at from 9½ c. to 9¾ c. We quote to-day 10 c. for all kinds, and for galena of which there is a quantity, 10½ c. has been paid, and 10½ c. is asked. The importations of the month amount to 1600 tons, and we estimate the stocks of foreign at 8300 tons, of which 2000 tons are duty paid, and 6300 in bond.—WINTERHOFF and Co.

NEW YORK, FEB. 25.—The coal market is well supplied with foreign, and prices tend downward; domestic is in liberal supply, and prices tend downward; the consumption thus far this winter has proved fully one-third less than last year, and the stock is ample; sales from yard at \$6 50 c. to \$8 per ton.

BOSTON, FEB. 23.—Prices of Pictou and Sydney Coal continue quite nominal. In Anthracite there have been steady retail sales at \$9 per ton. The Iron market

is steady and firm for pig-iron, with sales of Gartaharris and other brands, No. 1, at \$40 to \$42. And American pig at \$38 to \$40 per ton, cash and four months. Bar and sheet-irons are firm, and continue to sustain full prices.

The early part of this week was devoted to holiday making and festivities, and business for some days was completely at a standstill. In the MINING SHARE MARKET, therefore, there is not so much to report upon in the way of change, though great excitement has existed, and still exists, among the "bulls" and "bears" of North Roskear, and all sorts of rumours are in circulation as to the effects of such large speculative transactions on the account-day. Our readers will not accuse us of any great sympathy for the "bears." We have, upon several occasions, denounced the system, and the injurious effects of both "bulling" and "bearing" upon legitimate mining; and at the same time that we consider those who sell what they have not got, for the purpose of injuring the property of others, deserve all the punishment they get; the public are as often misled by, and suffer as much from, the operations of speculative "bulling." The "bear" may frighten the holders out of their property; but the "bull," by making high and unwarranted prices, creates a system by which the public eventually suffer, and unless both practices are checked, we shall have mining degenerate into a system where the interests of the bona fide shareholders are sacrificed, the permanent interests of the mines neglected, the public deceived, and the agents may become degraded into the mere panders to market operations. So far as North Roskear is concerned, our opinion of the mine, if properly worked, is well known. We were the first to call attention to the experiment at Pearce's shaft, and predicted its success, more than 12 months ago, and when shares were at 25*l.* each. We stated, also, at the time that the shaft was worked by flat-roads from Doctor's shaft, about 260 fathoms off, and it was always expected, if the discoveries were such as we anticipated, that, to save the risk of accidents which this long line of flat-roads endangered, an engine would be erected at Pearce's, as there is no doubt it ought to be, and would be, but for its probable interference with market operations. But, perhaps, the best way of putting the present state of affairs before our readers is to observe that "bearing" operations commenced a few weeks ago, when it was said that one of the most important points at Pearce's was not looking so well; and that, as it would take nearly two years to get up the 194 fm. level, the ore ground already discovered above it would be exhausted before that time, and a return to calls rendered necessary, unless a good call were made at once, to erect the necessary machinery at Pearce's shaft, and make the mine a good and permanent property. Upon these things such heavy "bearing" transactions took place that the "bulls" began buying largely at advanced rates all shares that offered on the market, until the price rose from 49 to 64; and as a further punishment to the "bears," it was understood at the meeting (which has since taken place), before settling-day, that the sett would be divided, and a high premium at once offered for the new shares. Our readers will, therefore, observe that the "battle" between the "bulls" and the "bears" in this instance is a very pretty quarrel as it stands, and the prudent will look on until after the day of settlement. At the meeting the accounts showed a profit of 187*l.* for two months; and steam-stamps are to be erected. The western ground is to be worked as a new sett. Shares leave off 59 to 61, including the new shares; but many dealers are cautious about having any further transactions till after the account, owing to the confusion created by the new shares. Wheal Seton shares have improved, and leave off 250 to 260; the sump-wins on the north caunter lode, we understand, is worth 17 tons of copper ore per fm.; the winze on Prideaux' lode, in the 140, is worth 6 tons per fm., and improving; the 140 east, 6 tons per fm.; the 140 west, 3 to 4 tons per fm. In about a month the north caunter lode will be set in the 150. Copper Hill shares have been in great demand, in consequence of our remarks of last week (the substance of which was officially communicated to us, that the shareholders might have the interesting nature and prospects of their property laid before them), and rose to 95, 100; but on Thursday, after opening at 99, they became flatter, owing, as we understand, to a report, freely circulated on the market, that the pursers were selling, a report which has knocked down the shares 10*l.*, but to which, we believe, we are fully justified in giving the strongest denial. The pursers hold nearly one-third of the mine, and, we believe, would not sell at present upon any consideration whatever, fully expecting as rich a course of ore as there was in East Basset. In our last there was a slight error in stating the winzes were 50 fms. apart; it should have been, that the ore ground in the 70 (not so deep as the 70 in East Basset), had now been proved for upwards of 50 fms. long. The winzes are 22 fms. apart; and the 70 end, which we reported last week worth 3 tons per fm., has now been holed to the winze, and the latter will be at once sunk into the bunch of ore. The end here is only now worth 1 ton, but being in the top of the bunch, it will vary, and is not of much importance. In Cross's winze, where the entire lode was worth 6 tons of rich ore last week, only half the lode is now being carried. Bryn Gwio, 30 to 32. Calvadnash shares have been in demand, and leave off 9½ to 10½. Caradon Consols, 18 to 20; Cargill, 45 to 47½; Clifford Amalgamated, 21 to 22. Cook's Kitchen, 26½ to 27½, and flat. Drake Walls, 2½ to 2½; East Basset, 80 to 85; East Carn Brea, 9 to 9½; East Chiverton, 5 to 5½; East Russell, 4½ to 5; Great Caradon, 1½ to 2½; Gonamena, 2½ to 2½; Grambler and St. Aubyn, 16 to 18; Great South Tolgus, 6½ to 6½; Great Wheel Vor, 7 to 7½; Great Wheel Fortune, 37 to 38; Herodfoot, 47 to 49; Illogan Consols, 27s. 6d. to 30s.; Kelly Bray shares firm, at 1 to 1½; Long Rake, 17½ to 18½; Marke Valley, 8½ to 9; Merilyn, 4 to 4½; North Basset, 4½ to 4½. Wheel Harriet shares have been rather firmer, and leave off 3½ to 3½; the 130 end is producing stones of tin; the slope, east of winze, is worth 60*l.* per fm.; the west slope, 60*l.* per fm.; the adit end, 10*l.* per fm. At East Rosewarne, the 65 west is worth 9*l.* per fm.; the slope below the 55, 16*l.* per fm.; the 55 west is improved, worth 20*l.* per fm.; the western winze, 25*l.* per fm.; the east slope, 30*l.* per fm.; the western slope, 20*l.* per fm. Wheel Kitty (St. Agnes), 4½ to 5; the 65 cross-cut, on the caunter lode, is worth 10*l.* per fm.; the 54 east, on Pryor's lode, 25*l.* per fm.; west, 12*l.* per fm.; the 44 west, 10*l.* per fm.; the rise, 15*l.* per fm.; the 34 east, 9*l.* per fm.; west, 11*l.* per fathom.

Wheal Edward, 2½ to 3; an important discovery has taken place in a cross-cut south at the 50, by the intersection of a south lode, which has been cut into 3 ft., and worth 80*l.* per fm. as far as seen. This lode gave good profits in Wheal Arthur. North Crofty, 4½ to 5; North Dolcoath, 2½ to 2½; North Downs, 2½ to 2½; Nanjiles, 7½ to 8½; Basset and Grylls, 27 to 28; East Grylls, 3½ to 4. Wheal Grenville shares have been firm, and in demand all the week, and leave off 5½ to 5½. East Grenville, 47s. to 49s.; the lode in the 55 east, or bottom level, has improved to 1 ton of copper ore per fm., in addition to tin. Pendeen, 5½ to 6½; Providence Mines, 42 to 44; Rosewarne United, 4 to 1; South Basset, 7 to 8; South Caradon, 410 to 420; South Carn Brea, 4½ to 4½; South Crofty, 28 to 30; South Frances, 90 to 95; South Tolgus, 65 to 67½; Stray Park, 37 to 39; Tincroft, 19 to 20.

Prince of Wales shares have been in demand, at 8s. 6d. to 10s. 6d. Mr. Jehu Hitchens writes from the mine, under date March 12: "In the bottom of the deep adit level the lode for some length was very productive, and large quantities of tin ore were returned." "This is a strong and masterly lode, with excellent capels, all congenial for tin, and well deserving a spirited trial both in depth east and west; eastward towards the Drake Walls Mine in particular; there is also a very large copper ore and mundle lode near the south boundary, which has returned a good deal of ore." Wheal Crebor shares have been in great demand, and advanced to 25s., 27s. 6d. The lode in the shaft is 4 ft. wide, worth 20*l.* per fm., and improving in going down. The 72 east is also looking better. The tribute department is much the same, and in April from 70 to 80 tons of copper ore will be sampled. Wendron Consols, 13½ to 14½; West Basset, 13 to 14; West Caradon, 32 to 34; West Seton, 265 to 275; West Stray Park, 4 to 4½; West Tolgus, 66 to 68. Wheal Polmar, 25 to 26; the north lode in the 15 cross-cut, at Entice's shaft, is daily expected to be cut, and the next sale of ore will be 205 tons. The 30 will soon be under the 15, where the lode was worth 70*l.* per fm. Wheal Basset, 72½ to 77½; Wheal Bulwer, 63 to 65; Wheal Grylls, 33 to 34; Wheal Ludcott, 7½ to 7½; Wheal Margaret, 32½ to 35; Wheal Mary Ann, 16 to 17; Wheal Telawny, 17 to 18; Wheal Union, 4½ to 5½; Wheal Uny, 6½ to 7½. Garreg, 2s. to 4s.; a good discovery has been made in a winze 6 fms. below the 20; the lode in places is 6 inches wide, of solid lead, and has the appearance of being the top of a good deposit of ore. East Caradon shares have been flat, and declined to 44, leaving off 44 to 45. The 50 east is worth 80*l.* per fm.; the 60 east 15*l.*; the 70 east 90*l.*; the 70 west 20*l.*; the new lode in the 70 east 15*l.*; the 70 west 8*l.* per fathom.

On the Stock Exchange a moderate amount of business has been transacted in Mining Shares during the week. The following quotations were officially recorded in British Mining Shares:—East Basset, 86, 79, 80;

Wheal Ludcott, 7½, 7½, 7½; Wheal Seton, 247½, 248; Wheal Union, 5½; East Caradon, 45½, 44½, 44½; East Carn Brea, 9½, 9½; East Wheal Russell, 4½, 4½; Great Wheal Vor, 7½; Great South Talsarn, 6½; North Wheal Bassett, 4½, 4½; Stray Park, 38½; Tincroft, 20; Wheal Buller, 65. In Colonial Mining Shares the prices were:—Scottish Australian, 1½, 1½; Yadanamutana, 4½, 4½; Dun Mountain, 1½; Kapunda, 1½. In Foreign Mining Shares the prices were:—United Mexican, 5½; Don Pedro, 3½; Cape, 2½; Fortuna, 5½; Capula, 1½; Lusitanian, 2; Montes Auros, 2½; Santa Barbara, 1½.

The closing quotations for shares in new undertakings were:—British and Foreign Marine, 1½, 2½ prem.; Oil Wells of Canada, 3, 3½ prem.; City of London Fire and Life, 4, 4½ prem.; Petroleum Trading, 1, 1½ prem.; Union Marine, 2, 2½ prem.; Empire Marine, 1, 1½ prem.; Bank of Gibraltar and Malta, 1, 1½ prem.; Continental Bank, 1 dis. to 1½ prem.; Intercolonial Bank of Australia and New Zealand, 1 prem.; Mercantile and Exchange, 1, 1½ pm.; London and South American Bank, 1, 1½ pm. Vigra and Clogau shares closed at 26, 28; West Clogau, 1 dis. to 1½ pm.; St. David's, 1½ dis.; Nova Scotia, 1½ dis.; Dolfinwog, 1 dis., 1½ prem.; East Cambrian, par to 1½ prem.; and Anglo-Prussian, 1, 1½ prem.

A prospectus was issued yesterday of the West of England Coal and Iron Company (Limited), capital 100,000. The object of the company is the acquisition, by purchase or lease, of several tracts of coal and iron ore in the Forest of Dean, the operations on some of which have already commenced. The superior quality of the Forest of Dean house coal and iron ores, together with the increased railway accommodation which is now being extended to this rapidly-rising and important district; above all, the practical and business character of the board of directors, which is highly respectable and influential, lead us to believe that the company will meet with success in its object. The gentleman appointed is well known in the mining world, and from his extensive and intimate knowledge with the Forest of Dean, we think this appointment considerably adds to the other circumstances which render the probable success of this undertaking so apparent. Full particulars will appear in our advertising columns next week.

IRISH MINE SHARE MARKET.—Our citizens have done their best to show their loyalty and devotion to the Royal Family, and so far as the illuminations of public buildings are concerned, have fully succeeded, according to accounts from London, in out-doing the metropolis of the universe. Of course, we had our provincial riots, and our Lord Mayor considered it expedient to recommend an extinction of all illuminations on Wednesday night, in order to prevent riots in our city; but, with the exception of those necessary national plays, everyone seemed bent on rejoicings and holiday making, rather than on attending to the more sober avocations of life. This accounts for the comparative absence of any desire on the part of the wealthier classes to patronise speculations of any kind which might require more serious calculation or consideration. Thus we have had a very quiet week as regards the transactions in mining shares. Nothing whatever was done in Carylfort shares, nor in Hibernian, Castleward, Crookhaven, or Carbery. But Wicklow Copper shares opened at an advance of 5s. per share on last week's prices, and were in request, at 41½, 10s. (5½ paid). A small number, however, changed hands at 41½, 5s., which price is now refused by holders. Mining Company of Ireland shares were dealt in at last rate, 19½, 12s. 6d., and are firm. General Mining Company for Ireland shares gave way 2s. 6d. per share, being now procurable at 5½ (4½ paid). The explanations given by the directors of the Connore Mining Company, at their half-yearly meeting, on Thursday last, tended to strengthen the tone of the market for their shares, which were in demand at 20s. 6d.

The principal points treated upon in the directors' and manager's reports are the retirement of Mr. Markham Browne from the office of resident managing director, which he occupied, according to special arrangement with him, for the first three years of the existence of the company, and the issue of the remaining 10,000 (1½) shares of their capital. The directors further report that during the temporary depression of the alkali trade they have deemed it their best course to apply themselves energetically to the development of their "great quartz lode," and other copper resources of the mines, which will make the company to some extent independent of the alkali trade. The appointment of Mr. Maynard, a practical chemist from Clausthal, Germany, to superintend and manage the chemical operations in extracting copper from poor ores; and of Capt. W. Bishop, a Cornish miner, for the purpose of attending to the economical raising and preparing of the same for the market, appears to have given general satisfaction to the shareholders, who have every confidence in their mines are very long paying profits, derived from copper as well as sulphur.

Many readers will be interested in learning, as reported here, that a company in London is about to take the Melkham Pit, at Harrington, and that in the event of any difficulty being in the way of raising the coal from the present old workings, new sinkings will be immediately commenced. The quality of the coal expected to be raised is the identical William Pit band. Should this be the case, it will be something new in the coal trade to have a supply of Whitehaven coal coming to this market outside of Lord Lonsdale's royalties.

A correspondent has furnished the following remarks in "Our Mines in the West" to the *West Carbery Eagle*, from which I am requested to extract them for publication in the Journal:—

"It always affords us pleasure to learn that our mines in the West are progressing in a satisfactory manner, as their successful working is of vast importance, not only to the proprietors, but to the district in general, as every person resident in the locality of the mines is either directly or indirectly benefited by the constant outlay of capital in their development. It is 40 years since the Great Cappagh Mine was last worked. The old miners of the district always maintained that there was a valuable deposit of rich copper ore in the bottom of the mine, and the result of recent operations has realised the fact. The mine, it seems, has just been cleared of water and rubbish to the bottom—84 fathoms from surface—and a vein of copper ore discovered worth 1000, per fathom. The ore is grey, intermixed with yellow, and some specimens were shown us which competent authorities state will yield 60 per cent. of pure metal. It has a very similar appearance to specimens of copper ore we have seen from Cuba and Chili. It is a cheering sight to witness the activity and well-directed application of labour in every department of these most extensive works. The machinery erected is of the most powerful and perfect description for pumping, hauling, crushing, and pulverising the ore. Labour is applied in various ways, from girls, who are employed at 6d. per day in sorting the different kinds of ore, up to the skilled artisan and engineer, while the miner, labouring in his vocation, sends to the surface the rich and shining heaps of ore extracted by his skill and practical knowledge from the hidden treasures in the 'bowels of the earth.' From all the enquiries we have made we are assured, by the highest and most competent judges, that our mines require only to be worked to a proper depth to become equal in value, if not superior, to any mines in the United Kingdom. This opinion is supported by facts; for we are informed that in Ballycummisk Mine, to the west, and on the same line of lodes, the bottom bed, 120 fathoms from surface, is the best part of the mine. This is also the case with the Scull Bay Mine, still farther west, on the same line of lodes, and in which we are informed that two new lodes have recently been discovered, which present every indication of surpassing in value everything hitherto found in that extensive and well-laid out concern. The proprietors of these mines deserve success, and every person who wishes to see the labouring population of the country properly and beneficially employed will be rejoiced to learn that they have been abundantly rewarded for their generous outlay of capital."

At Redruth Ticking, on Thursday, 2549 tons of ore were sold, realising 12,533½, 0s. 0d. The particulars of sale were:—Average standard 116½, 11s.; average produce, 6½; average price per ton, 4½, 18s. 6s.; quantity of fine copper, 167 tons 14 cwt. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Price per ton.	Ore copper.
Feb. 12.....	2940	111 13 0	7½	£5 6 0	£74 16 0
" 19.....	5101	120 2 0	5½	4 0 6	71 6 0
" 26.....	2530	115 13 0	6½	4 9 6	71 12 6
March 5.....	3277	114 14 0	7	5 5 6	75 8 0
" 12.....	2549	116 11 0	6½	4 18 6	74 14 6

Compared with last week's sale, the standard remains about stationary. Compared with the corresponding sale of last month, there has been a slight advance.

At the Wheal Tremayne meeting, on March 6, the accounts showed a debit balance of 281½, 15s. 1d. Capt. R. and J. Williams reported on the mine; they have now 82 men employed on ground on the mine, and 30 on the mine. On the whole, our prospects are still cheering, and much the same as for some time past, and we fully expect from present appearances to raise 40 tons of tin for the next three months."

At Alt-y-Crib Mine meeting, on Monday, an adjournment took place, there not being present a sufficient number of shareholders to form a quorum.

At Treloy Consols Mine meeting, on March 4, the accounts showed a debit balance of 6107, 1s. 3d. A call of 10s. per share was made. Messrs. Higgs and Son, the pursers, state that "the mine may now be considered as a more permanent concern than at any former period. The north lode, which has been opened on in the last few months, appears to be as productive as the lode which has hitherto made the profit. Providence and Treloy United Mine (on which we have expended about 1000½) will now meet its own cost, and when more developed leave a profit; so we do not anticipate any further call."

At the Connore Mining Company meeting, on Thursday (Dr. J. F. Waller in the chair), the report and accounts were received and adopted, and thanks were voted to the Chairman for his conduct in the chair. The directors report appears in another column.

At North Hafod Mine (special) meeting, on Thursday (Mr. Thistleton in the chair), an adjournment took place.

At the North Roskear Mine meeting, on Thursday (Mr. T. R. Field in the chair), the accounts for the two months showed a profit of 167½. It was unanimously agreed to work the western ground as a separate company, and to erect steam-stamps. The report upon the eastern mine was of a favourable character for tin and copper.

At the Devon Wheal Buller meeting, on March 7, the accounts showed a debit balance of 393½, 11s. The unpaid calls amounted to 394½, 14s. 6d. The meeting was adjourned to March 23, at the Bedford Hotel, Tavistock; and the committee were instructed to engage a disinterested and competent agent to inspect the mine, and the report to be presented at the adjourned meeting.

At the Caradon Consols mine meeting, on Wednesday (Mr. Buckland in the chair), the accounts to the end of December showed a debit balance of 133½, 10s. 2d. A call of 15s. per share was made. Details in another column.

At Linars Mining Company meeting, on Thursday, the directors declared a dividend of 5s. per share. The meeting of shareholders is convened for March 26.

At the Fortuna Mining Company meeting, on Thursday, the directors declared a dividend of 3s. 4d. per share. The meeting of shareholders was convened for March 26.

At the Scottish Australian Mining Company meeting, yesterday (Mr. Dickson in the chair), the report of the directors was received and adopted. The retiring directors and auditors were re-elected. Details in another column.

At the Great Wheal Vor United Mines meeting, to be held on Wednesday, the profit and loss account, made up to the end of December, shows a profit of 2½, 2s. The cash account made up to the end of January shows a balance of receipts in excess of payments of 1717½, 6s. 7d. The amount unpaid on calls amount to 7½, 4s. 5d. There were 94 fms. 2 ft. of ground sunk and driven during the three months.

LEEDS, MARCH 12.—There has not been much activity manifested in mining shares; business has been dull, and no important change in prices. The Cornubia Tin Mining Company (Limited) had a sale of tin last week, which realised the sum of 400, and one month previous, which realised 350; and it is confidently expected that sales of tin of increased value will be made monthly by this mine.—*JOHN GLENDHILL AND CO.*

LEEDS, MARCH 12.—During the past week the mining market has been very active, and several heavy transactions have taken place, especially in Wheal Providence shares, at advanced prices. The prospects of the Cornubia Mining Company are very cheering, and a considerable advance in their value may be looked for.—*EDWARD BROOK, Mining Broker, 5, Bank-street.*

The following are the Government Returns of the exports of articles identified with mining, the produce and manufacture of Great Britain, for the month ending Jan. 31, 1863; and also as compared with the month ending Jan., 1862; extracted from the "Accounts relating to Trade and Navigation," published by the Board of Trade:—

DECLARED VALUE FOR THE MONTH ENDING JANUARY, 31.	1862.	1863.	Increase.
Coals and culm	£ 234,138	£ 217,163	—
Hardware and cutlery	161,773	193,138	—
Do, surgical instruments	17,107	19,021	—
Do, agricultural implem.	24,968	203,848	27,158
Machinery	53,962	132,147	—
Steam-engines	144,920	198,882	53,970
Othersorts	115	50,645	50,999
Total	£ 636,968	£ 700,621	—
Metals:—Iron—Pig	£ 61,991	£ 73,301	—
Bar, bolt	126,920	153,062	—
Railway	107,670	161,148	—
Wire	11,351	27,292	—
Castings	42,082	38,303	—
Hoops	44,957	60,399	—
Wrought	148,414	132,361	—
Old, for re-manufact.	115	50,645	50,999
Steel	50,324	53,905	3,581
Copper—Unwrought	34,230	26,985	—
Wrought, bars, &c.	91,046	94,755	—
Other sorts	14,785	140,061	125,112
Lead	18,608	37,690	19,016
Brass	9,543	31,056	21,513
Or	22,492	6,403	43,493
Tin—Unwrought	64,283	26,051	3,559
Tin-Plates	3,069	71,155	6,872
Zinc	—	5,410	2,341
Grand total	£ 1,557,436	£ 1,687,007	£ 169,187
Less decrease—Coals and culm, 16,675½; copper, 14,941½; brass, 7,992½ ..	—	—	39,616
Total increase	—	—	£ 129,571

COAL MARKET.—On Monday the fresh arrivals only amounted to 26 ships. The tone of the market for house coal was slightly better, but Friday's prices were quoted for all descriptions of coal. Best house coal, 16s. to 17s.; seconds, 12s. 6d. to 14s.; Hartley's, 12s. 6d. to 14s.; manufacturers', 12s. to 14s. per ton.—On Wednesday 32 ships arrived. The cold weather produced more activity in the market for house coal, and prices advanced fully 3d. per ton. In Hartley's and manufacturers' a steady business, at previous value.—On Friday, only 10 fresh ships arriving, there was a decided improvement in the market for everything, the advance in prices being from 3d. to 6d. per ton all round. South Hetton Wallsend, 17s.; Haswell Wallsend, 16s. 9d.; Lambton Wallsend, 16s. 6d.; Teess Wallsend, 16s. 3d.; Russell's Hetton Wallsend, 15s.; Eden Main, 14s. 3d.; Hetton Lyon's Wallsend, 13s. 6d.; Hough Hall Wallsend, 14s.; Davison's West Hartley, 14s. 9d.; 4 cargoes unsold; 130 ships at sea.

BRISTOL COAL TRADE.—During Feb. 477 tons of coal were exported overseas from Bristol, as against 748 tons in Jan., showing a decrease of 271 tons in the shipments. The exports were as follows:—Barbadoes, 300 tons; Melbourne, 90 tons; Jersey, 15 tons; St. John's, Newfoundland, 72 tons.—Total, 477 tons. Some 1868 tons were exported in Feb., 1862, so that the shipments last month show a decrease of 1391 tons. The exports for the two months of the present year amount to 1225 tons.

AMERICAN SALE OF COAL BY AUCTION.—The sale of 30,000 tons of Scranton coal by auction took place at New York on Feb. 25. The sale is said to have brought full prices, and to have much disappointed those who were waiting for the sale to operate on a decline.

CORNISH PUMPING ENGINES.—The number of pumping-engines reported for Jan. is 29. They have consumed 2325 tons of coal, and lifted 18.3 million tons of water 10 fms. high. The average duty of the whole is, therefore, 53,000,000 lbs. lifted 1 ft. high, by the consumption of 112 lbs. of coal. The following engines have exceeded the average duty:—

Alfred Consols—Davey's 80 in.	74.6
Carn Brea—76 in.	52.6
Crane—70 in.	55.6
Dolcoath—Hartley's 60 in.	55.6
East Pool—60 in.	53.9
Great Wheal Busy—Harvey's 85 in.	60.1
Great Work—Leeds' 60 in.	65.6
North Roskear—Doctor's 70 in.	63.1
North Wheal Crofty—Trevenon's 80 in.	53.1
South Wheal Frances—Marriott's 75 in.	71.1
Stray Park—64 in.	53.7
Treloweth—60 in.	56.2
West Caradon—Elliot's, 50 in.	85.5
West Wheal Seton—Harvey's 85 in.	61.6
Wheal Ludcott—Willcock's 50 in.	57.7
Wheal Seton—Tilly's 70 in.	69.4

DEED OF ARRANGEMENT WITH CREDITORS.—The Court of Common Pleas, "guided" by a recent decision of the Lord Chancellor's, has held in the case of Berridge v. Abbott, that an arrangement by deed made by a debtor, and expressed to be for the benefit of such of his creditors, parties to the deed, as should execute it within a stipulated time, is not an arrangement for the benefit of all his creditors, such as is contemplated by the 192d section of the Bankruptcy Act, 1862. It was admitted in this case that the deed in question could not be distinguished from that in *ex parte Morgan*, recently before the Lord Chancellor. The Court thereupon said it thought itself guided, although not bound, by the clear expression of opinion of the Lord Chancellor in that case, and on that ground alone—that the benefits of the deed were not extended to all the creditors. Their lordships held that the deed was no answer to the action.

Vice-Chancellor Wood proposes on Thursday next to settle the list of contributories of the South Lady Bertha Copper Mining Company. The same judge proposes on the following day to make a call of 11s. 6d. per share on the contributories of the Buller and Bertha Mining Company.

The Stock Exchange Committee seem to be becoming aware of the necessity of enforcing stringent rules with regard to the numerous new companies now seeking admission into that establishment. It appears that the recent hesitation of the committee to admit the shares of the Continental Bank (limited) to the privilege of quotation in the Official List consisted in a just objection to a clause in the Articles of Association giving the company power to deal in their own shares. The directors having undertaken to adopt measures for expunging the objectionable clause, the company has been admitted to the full privilege of quotation. A similar course, with the same result, was, we understand, pursued with regard to the Midland Banking Company (limited). Another proof of the increased vigilance of the committee is presented in a decision come to by them a few days ago, by which persons who had bought shares in the St. Cuthbert Lead Smelting Company (limited) have been prevented from buying them in against sellers who had failed to deliver them.

Messrs. Farebrother, Clark, and Lye sold by auction, on Wednesday, at Garraway's, some valuable coal mining property, situate in the Forest of Dean, Gloucestershire, consisting of an undivided third part of a colliery known as New Boscon; an undivided third part of another colliery, known as East Deep; and an undivided fourth part of another colliery, known as Sherridge, comprising an area of 1700 acres; held under grants from the Crown, subject to a royalty of a penny per ton on a raised; sold for 13000.

The directors of the Metropolitan Railway Carriage and Wagon Company have announced the issue of 10,000 shares, of 10l. each, to the shareholders, being share for share on their present holdings. The company was established about a year since, and the first dividend was at the rate of 8 per cent. per annum, in consequence of its having secured the important and lucrative business of Messrs. Wright, of Birmingham.

RAILWAY CALLS.—The amount falling due in March is 64,827½, making the total for the three months of the present year 1,468,602½.

GEOLOGICAL SOCIETY OF LONDON.—March 4: Mr. Leonard Horner, Vice-President, in the chair. Francis Drake, Leicester; II. Commendatore Devincenzi, member of the Italian Parliament, Ministry of Agriculture and Commerce, Turin; Cav. C. Ferrazzi, Royal Corps of Mining Engineers, Turin; O. C. Marsh, M.A., 14 Linkstrasse, Berlin; and John Watson, Whitby, were elected fellows.

The following communication was read:—"On the Permian Rocks of North-Eastern Bohemia," by Sir Roderick I. Murchison. On Wednesday, the following papers will be read:—1. "On the Correlation of the several divisions of the Inferior Oolite in the Middle and South of England," by Harvey B. Hall, M.D., F.G.S.—2. "On recent Changes in the Delta of the Ganges," by James Ferguson, communicated by the President.

HEATING ORES AND GENERATING STEAM.—According to the invention of Mr. W. Biles, a blast furnace is used, which is closed at its lower end by a valve or slide, so that after the calcining is complete the ore may be discharged into a wagon for removal. The steam-boiler is heated by being placed in the retort, in which the flames and gases are continually playing around it.

NEW EXPLOSIVE COMPOUND.—A new explosive powder, invented by Mr. Reynaud de Tret, appears destined to render great services to the working of mines, in consequence of its low cost price. It is stated to be particularly applicable to the working of stone quarries. It is composed as follows:—Nitrate of soda, 52½; residue of tan (after having been used in the tanning of hides), 27½; powdered sulphur, 20½; total, 100½.

MINE BOILER EXPLOSIONS.—On Monday night last, the boiler of the pumping-engine at Trumpet United Mine, and that of the steam-whim at Bassett and Grylls Mine, both in Wendron, exploded. The damage at the latter mine consisted merely in a plate being blown out from the tube, and will be repaired in a day or two. No casualty occurred in either case.—*West Briton.*

LEAD ORES.			
Sold on the 6th March.			
Mines.	Tons.	Price per ton.	Purchasers.
Minera	100	£13 14 6	A. Eytton.
ditto	100	13 10 0	Walker, Parker, & Co.
ditto	100	13 10 0	ditto
ditto	35	13 10 0	ditto
ditto	105	13 10 0	ditto
ditto	100	13 10 0	ditto
Sold on the 11th March.			
Wheal Mary Ann	50	27 6 6	Trefry's Trustees.
Sold on the 12th March.			
Messyrowddu	55½	14 17 6	Newton, Keates, & Co.
Coelia Llys	60	15 3 6	Walker, Parker, & Co.
Deep Level	10	13 7 0	Newton, Keates, & Co.
Bryndor Hall	8	12 17 6	ditto
Rhodesmor	25	8 1 0	ditto
ditto	7	13 5 6	Walker, Parker, & Co.
Parry's	30	13 18 6	ditto
Bryn Gwlog	35	14 8 6	ditto
Long Rake	17	14 0 6	ditto
Merilyn	5½	12 11 0	A. Eytton.
ditto	2½	14 0 6	ditto
East Merilyn	2½	14 0 6	Newton, Keates, & Co.
Grestan	3½	13 7 6	Walker, Parker, & Co.
Holywell Level	10	14 12 6	Newton, Keates, & Co.
Pantymwyn	25	12 8 6	Walker, Parker, & Co.
Langnyng United	22	13 7 0	Newton, Keates, & Co.
Minera Unvyn	10	13 5 6	ditto
Roman Gravel	20	13 13 6	Walker, Parker, & Co.

BLENDE.			
Sold on the 6th March.			
Mines.	Tons.	Price per ton.	Purchasers.
Minera	48	£2 15 6	A. Courage & Co.
ditto	31	3 1 6	ditto
ditto	23	2 0 0	W. Kenrick.
ditto	13	3 15 6	A. Courage & Co.

BLACK TIN			
Sold on the 6th February.			
Mines.	Tons c. q. lbs.	Price per ton.	Amount.
Cornubia	2 16 3 17	£67 10 0	£ 192 0 10—New Blowing.
ditto	2 11 1 15	67 10 0	173 8 5—Dauzab & Co.
Sold on the 25th February.			
Leeds & St. Aubyn	1 8 0 23	67 10 0	95 3 6—Chyndour.
ditto	0 9 1 26	60 5 0	23 11 6—ditto
Sold on the 6th March.			
Cornubia	2 18 2 11	69 10 0	203 12 6—New Blowing.
ditto	2 15 3 14	69 10 0	194 3 4—Dauzab & Co.

COPPER ORES.					
Sampled Feb. 25, and sold at Tabb's Hotel, Redruth, March 12.					
Mines.			Mines.		
Tons.	Price.		Tons.	Price.	
West Bassett	75	£6 13 0	Tolvadden	31	£3 4 6
ditto	70	3 14 0	ditto	29	5 10 0
ditto	58	4 0 0	ditto	3	15 0 0
ditto	56	8 17 6	Copper Hill	48	2 1 0
ditto	52	4 11 6	ditto	47	1 14 6
ditto	45	9 18 6	ditto	46	6 17 6
ditto	43	3 16 0	Prosper United	100	4 2 6
ditto	36	4 4 0	ditto	19	1 13 0
ditto	33	6 7 0	East Rosewarne	38	6 14 6
Alfred Consols	52	4 0 0	ditto	34	13 18 0
ditto	50	1 2 6	ditto	26	9 7 0
ditto	49	4 1 0	ditto	13	2 17 0
ditto	47	3 1 6	Wheal Uny	46	7 10 0
ditto	46	3 15 6	ditto	41	6 9 0
ditto	45	2 17 0	Trevelyan	33	2 7 6
ditto	26	0 10 0	ditto	21	4 11 6
ditto	20	4 11 6	ditto	13	1 6 0
East Cern Brea	63	4 19 6	Wheal Buller	31	7 17 0
ditto	61	7 0 0	ditto	30	3 11 0
ditto	53	4 9 6	South Crenver	46	2 1 6
ditto	52	4 13 6	ditto	15	6 9 0
ditto	41	5 3 6	North Bassett	24	1 1 0
ditto	33	3 12 0	ditto	15	5 3 6
ditto	15	3 11 0	ditto	15	6 12 0
Far Consols	76	8 9 6	Wheal Anna	66	5 11 0
ditto	68	5 3 0	Wheal Agar	38	5 0 0
ditto	66	5 4 0	Charlotte United	26	4 11 0
Wheal Margery	56	6 18 0	Nanjiles	26	3 19 0
ditto	47	2 2 0	West Trevelyan	22	7 0 0
ditto	43	2 4 0	South Cern Brea	17	2 19 0
ditto	8	7 10 0	Great Work	16	8 4 6
Tolvadden	37	3 6 6	South Dolcoath	14	2 1 6
ditto	37	2 12 6			

ASSOCIATION FOR THE PREVENTION OF STEAM-BOILER EXPLOSIONS.
—At the last monthly meeting of the Executive Committee, Mr. Fletcher chief engineer, presented his report. Three explosions have been reported since the commencement of the year. In one of them the boiler was externally fired, and of plain cylindrical construction, the ends being slightly domed. The length was 5 ft., the diameter 2 ft., and the thickness of the plates $\frac{3}{8}$ in. in the ends, and $\frac{1}{4}$ in. in the remainder. The safety-valve, which was supposed to have blown off at 25 lbs. pressure, was found on investigation, to have been loaded to upwards of 100 lbs. A boiler, however, of such dimensions would, if well constructed, withstand a much higher pressure than that of 100 lbs. per square inch; but in this case the man-hole had not been strengthened with any mouthpiece, which, consequently, made a very weak point in the shell, and from which the explosion appeared to have arisen. Five rents had started from it, while the remaining fractures were subsidiary to these, and nothing more than the simple development of them. The effect of the man-hole would be to throw upon the plates of the shell, in the immediate vicinity of the opening, an extra distorting strain of about 10 tons, added to which, by forcing an internal one, there would be acting upon it an upward pressure of steam amounting to about 5 tons, and tending to drive it through the man-hole. The cover was a ball, being much too rounded, in consequence of which difficulty had always been experienced in making the joint, and it had been severely tightened by a stout bolt, which left the impression of the heels of the bridge in the plates. When it is remembered that the thickness of the plates was only $\frac{1}{4}$ in., it will not be thought surprising that fractures should have started at the man-hole, under the above circumstances; and the fact of five of the rents emanating from this point, and all the others being subsidiary to it, view that fracture commenced there in the first instance, it is thought to be conclusive that the malconstruction of the boiler, in not being suitably strengthened at the man-hole, was the cause of the explosion. In the third case, the circumstances were very similar to those already mentioned. As to the cause of this explosion there could be no room for hesitation. The safety-valve, which was stated to have blown off at 50 lbs. pressure, proved to have been actually loaded to upwards of 200 lbs., the diameter being $\frac{1}{2}$ in., the proper size of the valve being 1 in., and the weight with which the lever was loaded 100 lbs. The man-hole in this boiler, as in the case of the other, was not strengthened by any mouthpiece, and the rents, as before, had started from this opening. All modern well-appointed boilers have, as a rule, their man-holes strengthened by strong mouthpieces riveted to the plate, the surface for the cover-joint being faced; still, it is thought that the weakening effect produced upon the shells of boilers by steam domes has as yet received sufficient attention, and although it may have proved hitherto comparatively harmless, that the gradual increase of pressure, now generally taking place, must, in time, bring it to a more prominent position, and thus give rise to the details of the two explosions, with a view of showing that the safety-valve is not the only cause of the working without steam-pressure gauges will also be apparent from both of the above cases.

plions. In conclusion, no cases of such excessive pressure as those given in the report above have ever before come under my observation, and I trust that it will be seen from the results which followed, what a source of danger an ill-appointed steam-boiler may become; and, also, how seriously the shells of boilers are weakened by gases cut in their plates, either at man-holes or by substantial mouthpieces, or at the base of steam domes; and I would recommend that all boilers should be fitted with a steam-pressure gauge, and those working separately, with a duplicate safety-valve.

SPECTRUM ANALYSIS.—MANUFACTURE OF CAST-STEEL.—At the Manchester Literary and Philosophical Society, Prof. Roscoe stated that he had been for some little time, and is still, engaged in an interesting examination of the spectrum produced by the flame evolved in the manufacture of cast steel by the Bessemer process, on the works of Messrs. John Brown and Co., of Sheffield. The spectrum of this highly luminous and peculiar flame exhibits during a certain phase of its existence a complicated but most characteristic series of bright lines and dark absorption bands. Amongst the former the sodium, lithium, and potassium lines are most conspicuous; but these are accompanied by a number of other, and as yet undetermined, bright lines, whilst among the absorption bands those formed by sodium vapour and carbonic acid can be readily distinguished. Prof. Roscoe expressed his belief that this practical application of the spectrum analysis will prove of the highest importance in the manufacture of cast-steel by the Bessemer process, and he hoped on a future occasion to be in a position to bring the subject before the Society in a more extended form than he was at present able to do.

FOREIGN MINING AND METALLURGY.

The various contracts for rails which have been secured of late by Belgian firms, and which have been duly noted in the columns of the *Mining Journal*, have communicated, without doubt, great firmness to prices, and the tone of the market has been further strengthened by important orders for merchants' iron; while, as regards the future, encouragement is afforded by the fact that tenders have been invited for 5500 tons of rails required for the Farnham and Lander Railway. Pig has been more sought after, casting has become more scarce, and several works have raised their prices 2s. per ton; the lowest terms being now 31. 14s. per ton for No. 6, with a margin of 2s. per number. The activity which building industry is expected shortly to acquire will, it is anticipated, increase considerably the demand for girders. Experiments have been made at the works of Messrs. Gaillet and Company with a reverberatory furnace on a new system, introduced by Herr Salzer, a German engineer. It is stated that it secures great economy of combustible, and that puddled and re-heated iron thus obtained are of a very uniform description. Tenders are invited, deliverable March 24 at the latest, for the supply of 12 locomotives, 38 passenger carriages, 130 goods trucks, 2 snow-ploughs, and other accessories required for the Bernese State Railway. Payment of interests and dividends are announced by a variety of undertakings, and among the list we notice that the Antwerp Steam Navigation Company proposes to pay 121. per share in respect to dividends for the years 1848, 1849, 1850, 1851, 1852, 1853, 1854, and 1855. The Company for Promoting the National Industry of Belgium, which has given such a powerful stimulus to Belgian enterprise, and especially to metallurgical pursuits, has paid 15 per cent. per annum on its original capital for several years past, and its reserves now amount to about 1,600,000. No wonder that its shares stand at 150 per cent. premium.

Little change has taken place in the prices current for copper in the continental markets. At Havre, the calm which has prevailed has been intensified by the effect produced by the important fall of 91. per ton, which happened last month in the English market. A lot of 64 tons of Miners' has quit the Havre market, the greater part being delivered directly for consumption, at about 1021. per ton; one small lot would even have been sold at 1001. per ton. Chilean has fallen to 867., and at this quotation there have been some transactions for deliveries to be made at Paris and Liverpool; the comparatively low prices begin to attract attention, and speculation appears disposed to embark in the article; while consumption, for its part, is not backward in making offers. Old copper has followed the fall in ingots to the extent of 27. 8s. to 31. 4s. per ton. Affairs have been calm, and prices have remained without variation at Paris. At Marseilles, there has also been little activity; Taka has been quoted at 881. per ton; and Spanish, Chilean, and Peruvian have brought the same terms. Some demand has prevailed at Hamburg, but the majority of the orders received cannot be executed. In consequence of the too low prices fixed, and business, consequently, remains without animation. At Berlin and Cologne, although affairs have been inanimate, some improvement in prices is regarded as probable. In consequence of the reviving firmness of the English market. The amelioration in the Dutch tin market towards the close of January has been followed by a period of comparative inactivity; nevertheless, the market having hardened little by little, while affairs have, on the whole, become more animated, the price of 73 fls. has been easily maintained, that being the point at which the article has stood since a rise of 41. was made at London in January. The transactions effected during the past month were of a tolerably important scale; and although the greater part took place on speculative account, something was, nevertheless, done for exportation. On the whole, the state of affairs is not unfavourable, and as in France, Germany, and Russia the stocks have been much reduced, there is reason to conclude that the requirements of consumption will suffice to maintain a regular demand, and to sustain the present aspect of affairs. The state of the market was as follows, Feb. 28:—

Stock, Jan. 24	1863.	1862.	1861.
Deliveries in February	8,665	8,465	10,137
Stock, Feb. 28	51,740	40,101	50,955
Arrived for the approaching sale	86,234	104,800	120,746
At Paris, some transactions have taken place in anticipation of a revival of activity, and Banca has been firmly held at 1271. Doit at 1251. and English at 1211. Banca has also been firm at Hamburg, and English has been in favour in consequence of the rise in quotations in England. At Berlin and Cologne, Banca has been very firm. Lead has been quiet at Paris; rough French has been quoted at 221. and Spanish, 221. 8s. per ton. At Rotterdam, lead remains firm, and Stolberg has been quoted at 115 1/2 s. per ton. At Marseilles, the quotations reported are for lead in saumons, first fusion, 197. 4s.; second fusion, 187. 16s.; argenteiferous, 197. 4s.; in shot, 217. 12s.; rolled and in pipes, 217. 4s. per ton. The article has been better held at Havre, but there has not been much business doing; an offer of 207. 12s. per ton, with 4 1/2 per cent. discount, has been refused for 100 tons of Spanish, first fusion. The arrivals during February were 2125 saumons of German, and the remaining stock was 450 to 500 tons. Lead maintains itself firmly at Hamburg; numerous transactions on consignment account have also been effected at rather better prices at Berlin and Cologne, as well as at Stettin. At Paris, rough Spanish remains at 197. per ton. Holders at Havre are very firm in their demands, and this has checked business; the prices asked are 187. 16s. to 197., but there are only buyers at 187. 8s. to 187. 10s. The arrivals in February comprised 26,700 plates for consumption. Zinc has been calm at Hamburg, and prices are the turn in favour of buyers. The transactions concluded at Bremen have not been of much importance.			

The exceptionally advantageous conditions on which the works of the Moselle can carry on business are attracting increased attention, and it begins to be felt that for the other metallurgical groups of France the Moselle district may possibly be a more formidable competitor than either Belgium or England. It is proposed to establish at Havre a depot for the products of one of the most important works of the Moselle, and the tariff levied for its iron is expected to be about 87. 8s. to 87. 12s. per ton, as nearly as possible the price required for Welsh iron at Havre. The expenses for transport from Ars to Havre being 11. 7s. 6d. per ton, and those from Hayange to Havre 11. 8s. 9d. per ton, the price of the works would be 77. to 77. 4s. per ton. Can the works of the Moselle deliver iron on these terms? It is boldly affirmed that they can, and that the gentlemen to whom they belong can still secure an adequate return upon their capital, provided that their establishments are well situated, and well supplied with tools. Even the *Ancres* of St. Dizier, a journal which has taken the gloomiest possible view of matters since the conclusion of the treaties of commerce, comes to this conclusion, observing:—"The approaching creation of new metallurgical works in the rich district of Longwy, for the fabrication of rails and merchants' iron, is considered as serious; and we know that one establishment in this group is developing its means of production in a remarkable manner. The stirring work is being carried on, confined to their operations to the fabrication of rails, are everyday making more and more merchants' iron, and are concerting further arrangements for the production of iron of commerce and special irons. Considered with regard to its metallurgical position, the department of the Moselle is assuredly one of the best situated in France, and it is not at all surprising to see our industrialists and capitalists devote their activity and money to the development of siderurgical industry in this favoured group." In the Haute-Marne wood-produced pig is a good deal offered, and would find sellers at 57. 6s. to 57. 8s. per ton; little or nothing has been doing in pig of mixed production, and there is no change to notice in the quotations current for iron.

M. Edouard Dalloz, an advocate, and a member of the French Corps Legislatif, has just published, in two volumes, a work on mining property, and the legal organisation of mines in France and Belgium. Among the industries which excited the least attention in past ages, but which now stand out in very bold relief, mining is pre-eminent. The extraction of coal has, especially of late years, acquired an immense development. In 1816 this extraction only amounted in France to 900,000 tons, but in 1857 it had risen to 7,900,000 tons. In the five years which have since elapsed further progress has been made in the extraction, and that which is true of France is also true of all other countries which possess coal bearings. Every where during the last 50 years the working of collieries has more than doubled. M. Dalloz has, therefore, published his work at an opportune time, and, as he is considered highly competent to treat of the subjects which he directs his readers' attention, his book must be regarded as a valuable contribution to current literature. Called long since to a participation in public affairs, M. Dalloz has also been mixed up with all the great enterprises and metallurgical workings of France, towards which the speciality of his works, and the turn of his mind, attracted him. It is the mature result of these researches, and judicious observations which his experience has enabled him to make, that he has now delivered to the public. A law of April 24, 1810, serves as the starting point for the legislation on mines now in force in France and Belgium, and has been in operation in those countries for 50 years. The moment seems to have arrived when the lessons of experience may be better applied to the object which M. Dalloz has in view is to study the arrangements of the law of 1810, in order to see if those arrangements are interpreted by jurisprudence and applied by the Government, constitute a legal system for mines sufficiently favourable to assure the full development of mineral production; and further, if this be not the case, to ascertain what are the principal innovations or modifications which should be introduced in order that mining law may find itself more in harmony with the economic exigencies of working, and be able to cope with the menacing eventualities of a new situation. We propose next week to examine more in detail the views of M. Dalloz on these interesting subjects.

METALLURGY OF SILVER.—IMPROVEMENT IN THE OXIDATION OF SULPHIDES GENERALLY.—Mr. John McCulloch, analytical chemist of San Francisco, California, has forwarded us a sketch of the process which he substitutes for those of Ziervogel, Augustin, and Percy for converting the insoluble sulphides of silver into soluble salts. He says:—

"Knowing that it is just as easy to burn or oxidise sulphides as it is carbon, in whatever form of fuel it may be, and that to do either it is simply necessary to apply a gentle heat and plenty of air, I determined to abandon any further operating with the reverberatory furnace, willing to sacrifice all, if ever I saw, leaning towards the selfish and assumed aristocratic superiority of the scientific conventionalism, which is but too much afraid of contamination from contact, and too often to be regarded as a conflict with practical efficiency. Mindful of the fact that the burning of London bricks containing combustible matter, purposely made up in them, is at once the grandest,

easiest, and best process of oxidation that admits of ready illustration, I procured a bushel and a half of common sawdust, and mixed it intimately with the remainder (980 lbs.) of the sulphuriferous pyrites. This done, I made a muddy liquid, by stirring into 30 gallons of water two pails of ordinary clay, and with this, after all the stones and rough sand had been subsided, I made up the bulk; stiff enough to retain shape when made into bricks. After being sun-dried the bricks were loosely but regularly piled together in pigeon-house fashion, with a vacant space in the centre to hold fuel, and outside, with the exception of the top and feed hole, there was a tight casing of common bricks and mud. Starting with a gentle wood fire in the place left for the fuel, the burning was continued for 12 hours, and until the evolution of all sulphurous and acid fumes ceased, and nothing but ordinary fire smoke and hot air were given off from the heap or clamp. Nothing then remained to be done but to discard the casing and amalgamate the decomposed pyrites, which had become so brittle as to break down into fine powder by mere handling. The changes were no other than such as could not resist being brought about, and the result was the production of seven times more gold than had before been taken from a like quantity of the same pyrites, and, therefore, highly satisfactory."

REPORT ON CORNWALL AND DEVONSHIRE.

[FROM OUR CORRESPONDENT IN TREURO.]

MARCH 12.—I have more than once endeavoured to draw the attention of your readers to the unparalleled development of mineral wealth that is gradually unfolding itself in the mining district of Illogan and Camborne, skirting the north side of the Carn Brea and Carn Entral granite range. The productiveness of the mines of this district is, of course, widely known; but I doubt very much whether it is at all generally understood that no other mining district in the county, or, indeed, as far as our experience goes, no metallic mining district in the world, can be put in comparison with it. Notwithstanding the flowery rhetoric of projectors, brokers, and bal sellers, on the virtues of "depth," there is no fact better established in metallic mining than that there is a limit in depth in most districts to the productiveness of lodes, beneath which limits explorations are practically hopeless in an economical sense. In many districts in Cornwall, and in most of the best known mining districts of other countries, this limit has been practically ascertained and acted upon by prudent miners—although, of course, rash and ignorant speculators have frequently been, and, probably, ever will continue to be, found to undertake absurd and wasteful enterprises, in defiance of this experience. The popular hypothesis, that the metals found in veins had been injected upwards in a molten state from some metallic magma in the interior of the earth, fostered the notion that all lodes became richer in depth as they approached their original source of supply; and so comfortable a doctrine as this, albeit delusive, was too convenient a one not to be encouraged by the numerous, if not very excited, class who gain a livelihood (such as it is) by making our metallic mining industry a source of waste and gambling. At the present moment, probably, there is a wide-spread delusion that all lodes may be expected to get richer in depth; but, unfortunately, save in the case of very few exceptional districts, such is far from being the case. In Cornwall even—the great classical home of metallic mining—we only know, as far as our experience goes, two really deep-producing districts—that of Gwennap, and the one at present under consideration, skirting the Carn Brea range on the north. In every other district, as far as yet ascertained, the limit of productiveness in depth has been reached. Even in the district of Wheal Buller, Wheal Basset, South Frances, West Basset, &c., which skirts the Carn Brea range on the south, the most energetic researches, which have now been continued for some years, have failed to discover any deep-lying metallic deposits.

What the Gwennap district might have done, notwithstanding the immense quantity of water that has to be contended with, under fair conditions it is not now easy to say. The present position of Clifford Amalgamated affords no criterion of what that position might have been if the Consolidated Mines had been allowed to be worked out fairly. As it is, everyone knows that these great mines were irretrievably ruined, and the entire district damaged beyond reparation by a policy as remarkable for its shortsightedness as for its intense selfishness; a policy marked by its disregard of every other consideration than the gratification of domineering self-will,—of which we have quite recently had another notorious example. There is, therefore, in fact, only one district in Cornwall—that skirting the north base of Carn Brea and Carn Entral—in which we have failed to reach the productive limit in depth, although this district comprises the deepest mines in the county. So far from having unbottomed the metallic riches of the lodes, the deepest mine (Dolcoath) is the richest in the district, and the richest part of Dolcoath is the bottom. Mines which a few years ago were reckoned as about the poorest in the county have gradually developed themselves, and have become not only the most profitable of the day, but show future resources hitherto entirely without parallel in any metallic mines whatever. And, beyond this, it is now becoming evident, by the opening up of one mine after another, that this metallic development is not speculative—that is, capricious and uncertain—but that it really extends over the whole of this great district. The explorations, which were primarily induced by the magnificent success of Dolcoath, have in every instance that afforded a fair mining scope been crowned with success. Shafts that were stopped sinking years ago (as in East Pool and West Seton) having been resumed, soon cut into magnificent courses of tin or copper; and others, in which the water was allowed to rise, having been now forked, show promises of equal results. Such unvarying success has never been before known in metallic mining; there have been no recent failures, and there is every reason to believe that any failures of the past are exclusively attributable to bad management. In Dolcoath, the oldest and deepest mine in the district, we can see our way for a generation; and looking at the way all the neighbouring mines are turning up, and their shallowness as compared with Dolcoath, it really seems as if this district possesses resources the limits of which are quite beyond our calculation. It is not too much to say that in all human probability the mines under the shadow of Carn Brea will be working prosperously when numerous others, as yet undiscovered, will be wrought out and abandoned. It is by no means impossible that this district may even see out our coal fields; and that as Britain was first heard of in the world as the source of tin, so this metal may remain the last representative of our enormous mineral productions.

Out of any of the mines of this district I know of none more interesting or instructive in their development than TINCROFT—whether we regard the mine itself, its past phases of management, or the estimation in which it has been held by the mining public. A little more than two years ago, in Nov., 1860, I gave a description and history of this mine in these columns. I then endeavoured to show the paramount importance of the district compared with any other in the county; and also the unappreciated importance of Tincroft in the district, as will be seen by the concluding paragraph, which I take the liberty of quoting now:—

"Tincroft is a mine which, from various causes, has been worked in a very unsatisfactory manner through the greater part of its career; and, in fact, has not, on the whole, received fair play; if it had it would have made much greater profits. Now, however, it is working into a different position, and must soon be one of the most important mines in this great district. Its present profits (600000 a year) will, as the ground opens out, be gradually increased. If Dunkin's lode should continue for any length of time as it now is, there is no reason why Tincroft should not rise to take its place among the most profitable mines in the district. The speculation in this mine (and the same applies to the whole range) is really the maintenance of the price of tin. The ground can never be taken away in the time of any person now living, but the rate at which this is accomplished, and the consequent profits, will be accelerated or retarded according to the fluctuations in the price of the metal. Considering these things, a comparison of the price at which this is selling, and that (taking quoted prices as a guide) others are realising, show the imperfect appreciation in which some of the mines of this great run are yet held by the public, when we find a concern like this (where we can see our way for a generation) absolutely selling for less money than certain 'progressive' mines, against which the chances of success are at least 20 to 1."

When this was written Tincroft was selling for 51. per share—at the rate of 30,0000. for the mine—that is for half the sum New Seton has been lately realising, and for one-third the price at which Tokenbury has been since quoted. Since I wrote that paragraph there has been no special discovery in the mine, and the price of black tin has receded fully 161. per ton; yet the mine has doubled its profits, and increased fourfold in market value. Of course there is nothing surprising in this, for such a result was palpably obvious, although mining speculators were slow to perceive it; in fact, Tincroft had been woefully mismanaged for a long number of years, having had the misfortune—the greatest misfortune that can occur to any mine—to be controlled by a London office and a London committee. Upon what principle London managements select their agents might be a curious enquiry; but, whatever may be the inducing motive, there is very little mistake about the result, for they almost invariably contrive to secure the least worthy, either in ability or character, of the mine agents of the county. Tincroft had got a horribly bad name, which, of course, is not a thing easily shaken off, even when it ceases to be deserved; and the mine was still under a "scrip" constitution, and at the mercy of a London board. Fortunately the majority of the mine was under the control of the manager, Capt. Teague, through the late Mr. J. G. Tyrie, so that he was practically able to smile at the ukases of directors; a position to which the salvation of Tincroft is undoubtedly due.

In the article referred to I pointed out two leading features in Tincroft—viz., the ground on Chapple's lode, west of the Downright shaft, adjoining Cook's Kitchen; and the recent discovery on Dunkin's lode. With regard to the former, I stated that "a comparison between this part of Tincroft and the eastern part of Cook's Kitchen gives a great importance to this piece of ground. Here we have at as shallow a level as the 142 a run of tin ground 50 or 60 fms. long, which, by the experience of Cook's Kitchen, we know to extend for at least 50 fms. in depth." Which I wrote in the 142 was the deepest level in Tincroft through this ground, and was driven to within 7 fms. of Cook's Kitchen boundary. I stated that "When the 142 reaches the boundary, a boundary

winse will be sunk, from which levels will, if possible, be extended east towards the other levels, in order to open the ground as fast as possible. If, as is expected, the proposed boundary winse should probably hole at some points to the Cook's Kitchen workings this may be possible, as there would be no difficulty about the water, which would be drained by the deeper workings of that mine." The facts have turned out exactly as anticipated. Upon the 142 being driven to Cook's Kitchen boundary, and a boundary winse sunk, the latter holed to Cook's Kitchen workings, which, for an extent of fully 30 fms. in depth, are found to have encroached rather considerably on Tincroft ground. Two other levels, the 152 and the 162, have been communicated from this winse to the Downright shaft, and the winse itself is sunk to the depth of about 200 fms., and has another level, about the 185, driven from it towards the Downright shaft. The worth of this piece of ground was, of course, as obvious two years ago as it is now, although its actual value was not so well ascertained. The levels that have been opened out show it to average about 601. per fathom, and, as it is almost untouched below the 152, there is a piece of high ground standing, 50 fms. deep, from that level to the present bottom of the boundary winse, which can be worked dry from Cook's Kitchen. Besides which, it must be remembered that Cook's Kitchen is again 50 fms. deeper, although probably in their deeper levels they will be more careful, and avoid hoisting to Tincroft.

The value of this piece of ground can be approximately estimated, from the data I have given, by anyone who can do a multiplication sum. Its money-value is probably double that of all the reserves in East Cornwall; yet it is only one of the features in Tincroft, and one which is so little depended upon for present returns that there is only one pair of men stopping on its whole extent.

When Tincroft holed to Cook's Kitchen, and it became necessary to define very accurately the boundary between Mr. Robartes' land (Tincroft) and Mr. Basset's land (Cook's Kitchen), a dispute arose between the representatives of these gentlemen as to whether the whole of the boundary (once belonged to Mr. Robartes, or whether half belonged to each. This has been settled in favour of Mr. Robartes, and arbitrators have been appointed to assess the value of the tin ground taken away by Cook's Kitchen adventurers from Tincroft sett. Mr. Thomas Field has been appointed arbitrator on behalf of Tincroft, and Capt. Thomas Richards, of Camborne, on behalf of Cook's Kitchen. Capt. Richards was formerly manager of this latter mine.

With regard to the second feature, Dunkin's lode, when I wrote it had just been intersected in the 142. On this discovery I remarked—"A very fine discovery has been made here, for a large and highly productive lode has been opened up, valued at 401. per fathom, but probably worth a good deal more for the ground absolutely broken. But the principal feature about this lode is not so much its productiveness as its general character, which more nearly resembles those of Dolcoath and Stray Park in the bottom. The work already broken has averaged 7 cwt. per 100 sacks, the lode yielding possibly from 250 to 300 sacks per fathom. So little has yet been seen of this lode, it only having been opened on 9 feet west, that it would be premature to say much about it at present, but if it should continue any distance as it now is, it must enormously enhance the value of the mine, for it is entirely in whole ground, there being no workings immediately above it under the 55." The anticipation which I held out in the above paragraph have been amply realised by the result. For the last two years Dunkin's lode has been the most productive point in Tincroft. A cross-cut was driven to it from the 100, which level, however, was poor, the tin not making so shallow: and the 100 and 142 were communicated by a winse, from which two intermediate and productive levels (the 112 and 130) have been extended. A 180 cross-cut is now also driving, and is daily expected to cut Dunkin's lode at that level. These workings, it may be stated, are in the eastern part of the mine, near Carn Brea boundary, and as Dunkin's lode was formerly one of the richest for copper in Cook's Kitchen, and is now being cross-cut in the bottom levels of that mine, Tincroft has yet to explore this lode west for the greater length of its set. Considering what this lode has done within the last two years at one point, and that, working under great disadvantages, we may fairly look forward to proportionately much greater results when it shall have been opened out for a considerable length, and at various levels; indeed, at this one point alone there is evidently scope for the making of a large and profitable mine. In this part of the sett, 10 fms. to the south of Dunkin's lode, another, called the south lode, has recently been intersected in a cross-cut in the 100. Here a very fine lode has been met with, worth 201. a fathom, and of a beautifully congenial nature for tin; it has only been opened on 8 or 10 fathoms, but considering that its character is quite equal to Dunkin's lode, and that it is productive in the 100, where Dunkin's lode was poor, it seems to me to be a point of immense importance. Another cross-cut to intersect this lode—which, by-the-by, 40 years ago was very rich, and was worked down to 80 by the celebrated Captain Thomas Teague—has been commenced driving from Dunkin's, in the 140, which will tell us more about it. I have more than once stated that the relation of the Tincroft and the Carn Brea lodes is not very clear, and that differences of opinion exist on the subject; but Capt. Teague thinks that the south lode is the Fanny engine lode of Carn Brea, and if so the Carn Brea main lode, or Teague's lode, is 20 fathoms again further south, and remains still to be cut in Tincroft.

This reference to some of the features of Tincroft may serve to show the practically inexhaustible resources of the mines of this district. When, in addition to these natural advantages, we compare the enlightened liberality of the landlord, Mr. Robartes, with the grasping spirit (the modern representatives of the spirit of the fable of the goose and the golden eggs) of the petty yeomen, in a district such as Marazion, we see another inducement to invest in Illogan and Camborne mines. Mr. Robartes has recently granted the Tincroft adventurers a new lease, at the extremely moderate dues of 1-26th, with which he has only coupled the fair and humane condition that the company shall erect a man-engine, to which he has himself liberally contributed 2000. When we compare these dues with those paid by the comparatively poor neighbouring mine of Carn Brea, which are 1-18th, we are in a better position to appreciate Mr. Robartes' enlarged views, which prevent his being influenced by so unfortunate an example. This engine will be at once put down to the 140, at Blight's shaft, and will, probably, cost the adventurers 10000.

It would be impossible to refer to the success of Tincroft without coupling with it the name of the manager, Capt. Wm. Teague, to whom that success is most undoubtedly due. Besides, as far as he himself is concerned, this success has not been a barren one. Although of respectable family, Capt. Teague commenced life as a working miner, and he is still a young man; yet in a very few years he has succeeded in accumulating the largest fortune, probably, ever realised in Cornwall by a mine agent. He at present holds 2620 shares in Tincroft, the market value of which now considerably exceeds 52,0000.; and almost the whole of this has been made out of Tincroft. As a present share in Dolcoath (now worth 6501.) has been within a few years sold as low as 61. or 71.; so shares in Tincroft were selling for an old song when Capt. Teague first became connected with the mine. He, a shrewd man and a good miner, saw his opportunity. He invested all his savings in the mine, and has ever since continued to do so, so that he now holds the immense interest mentioned above, not a share of which could he be induced to sell even at recent prices, although some hundreds of them have considerably more than repaid in dividends what he originally gave for them. The dividends upon Capt. Teague's interest will now be at least 500000. a year—a large income to a man whose expenses do not, probably, exceed his salaries from Tincroft and Illogan.

Tincroft is now placed on the Cost-book System, although a remnant of the old board of directors still remains, and shows some determination, I believe, to die hard. As the collective interest of the four gentlemen who are supposed to form this board only amounts to 100 shares (25 shares each); their influence is certainly not great, and whatever legal difficulties there may be in giving them their final *congé* must soon be dissipated by the new lease, in which Mr. Robartes, who does not seem to appreciate London boards, has stipulated that the mine shall be conducted on the Cost-book System. If at the next meeting, in April, resolutions are passed carrying out this in its integrity; and if at the meetings of the adventurers are held upon the mine, as in Dolcoath, so that shareholders can judge of the working of their property without the information being filtered through a London secretary, there can be no doubt that Tincroft will take a still much better position, and the people in Cornwall will cling to the shares as they now do to those of Dolcoath or any other favourite mine. A considerable majority of the shares are now held in the county, and the recent rise in price is, no doubt, entirely attributable to the purchases of Cornish buyers.

The present returns of Tincroft range from 35 to 40 tons of black tin per month; that is, about half the returns of Dolcoath. The proportion between the profit of the two mines is, however, very different, for while Tincroft is now making about 10000. per month, Dolcoath is probably not exceeding 15000. That is while the ratio of produce is one to two, the ratio of profit is only two to three. This is, of course, due to the fact that Dolcoath is a deeper, and consequently a more expensive, mine.

Adjoining Tincroft, on the south, are the ILLOGAN MINES, a sett recently again put to work under the management of Capt. Teague. It was originally worked as Wheal Providence, on the western continuation of the Druid lode of Carn Brea, which has been one of the richest for copper in those mines. Subsequently it was worked by the Tincroft party, as South Tincroft, about 10 years ago, under the management of Capt. Peter Floyd; but this working was little better than nominal, except so far as spending money was concerned; yet several parcels of good ore were sold. Besides the Druid lode, which, from the great returns it made in Carn Brea, would appear to be as good a speculation as any in the district, there are four other known lodes, the two principal of which are the Caunter lode and the South lode. The Caunter lode was worked some years ago to the depth of 20 fms. from surface by a small engine at Cook's Kitchen, when that mine was under the management of Capt. Thomas Richards. Some tin was raised, and altogether it showed great promise; but a portion of the sett was taken away from Cook's Kitchen to make up the new sett, which includes portions of the lands of Sir R. R. Vyvyan, Mr. Robartes, and Mr. Basset. The South lode, which is supposed to be a continuation of the East Carn Brea south lode, has only been opened on at surface, but here it is a very promising lode. It has been found that the deep adit has been extended from the Druid lode, about 20 fms. south, towards this lode, which will be intersected about 30 fms. deep by 20 fms. further driving.

From the position of this sett—on the parallel of Tincroft, and with several well-known productive lodes—its success seems, like every other mine in the district, to be merely a question of time. That it is under the management of—indeed, I may almost say a child of—such a successful

manager of Capt. Teague is of itself a guarantee of its character. The engine will soon be at work to fork the old mine, which is 60 fms. deep.

REPORT FROM NORTHUMBERLAND AND DURHAM.

MARCH 12.—The Coal Trade in Northumberland has improved a little lately, after a long depression like that which has lately been felt it is cheering to notice that an improvement has taken place. The collieries near Blyth—Cowpen and others—have been better employed lately. The other branches of the coal trade continue, on the whole, to be pretty well employed. The weather here lately has kept up its old character—that is, it has been excessively changeable, having been during the week ending March 7 very warm, quite as warm as is felt in the North in the heat of some summers, while the past week has been from changeable to moderate, and latterly excessively cold and stormy; very severe weather indeed during some of the days. This weather has, of course, to a considerable extent interfered with the displays of loyalty generally made throughout the district on the occasion of the Royal wedding-day; still they have been carried out with laudable perseverance, in spite of the untoward weather, to a great extent. The Coal Trade will, it is expected, receive a little impetus in some of its branches by this sudden and great change.

An explosion of gas took place in the Coxlodge Colliery on Friday, which has been attended with most disastrous results, twenty lives having up to the present time been sacrificed, and some others, three or four in number, who are severely hurt, still continue in a precarious state. The colliery is situated near Newcastle, being only 1½ mile distant, and it is one of the oldest collieries now working in the district. The pits in the concern are rather numerous, the colliery being more favoured in that respect than many others. The workings are also very extensive, but the place does not appear to have been considered of a very fiery character. Davy lamps were used in some parts of the workings, and candles in others.

The inquest was held, yesterday (Wednesday), at Bulman's village, before the coroner, Mr. Reed. Mr. Maddison, the head viewer, was examined, and explained the mode of ventilation. About 11,000 cubic feet per minute passed into the particular district where the explosion occurred, which was in Leonard's cross-cut; thirteen men were employed in this way, nine using safety-lamps and four using candles; the latter working in bords, and the others having commenced to remove the pillars. The evidence is too lengthy to give here in *extenso*, but we give below extracts from the most important of the witnesses' depositions.

George Turnbull, deputy, said, I have been a deputy at Coxlodge four years. I was down the pit on March 6, at the time of the explosion. I was in the workings of Leonard's cross-cut at the time. There was a good current of air. Four men were working with naked lights. The two bells were working at the place where it fired. By Mr. Dunn: Do you think it fired on the two bells?—I think it did. I had been at the bell 2½ hours before the gas fired. I saw no gas there at that time. I was two walls off when it fired. I thought the gas had come off at the old bord—the stow-bord. That was where the bells were. I fired a shot there that morning about 10 minutes before the explosion in the third wall off Bell's bord.—Was it likely that the concussion from the shot brought down the gas?—If it had done so it would have fired immediately. I don't think the concussion would bring down the roof in Bell's bord.—Mr. Dunn: Was it not dangerous to fire shots?—Witness: I don't think there was any danger.

By Mr. Dunn: I fired the shot in Wm. Bulman's bord. He was working with lamps.—Are you authorised to fire shots when they are taking off pillars?—I am authorised to do so if it is all right. Bulman was starting to work the pillars. Robert and Michael were burnt; they are both dead. Ramsay, who was burnt, is also dead; but the other man, Stonehouse, is likely to get better. I think all the gas that came off came from the old bord. There was not much came off; if there had been I should not have been here. I was struck by the explosion. The after-damp was bad, and I had some difficulty in getting out.—Mr. Dunn: The return from the goaf, supposing there is one, goes into these workings. Is that a proper course?—There is no goaf yet.—But suppose the working goes on?—The Coroner: That only relates to the future.—Mr. Dunn: It shows the system is faulty.—Witness: According to my opinion, there was a sufficient quantity of air going through the workings to render them safe. I never saw any gas near the place where it fired. We had a single door in the far alley-way to guide the air into these workings. I think there would be a flat-lad at it.

George Short said: I have worked at the colliery about 15 years. I was working in Leonard's cross-cut at the time of the explosion. All the places have been free from gas except the Gosforth drift workings. We have always had a good ventilation. I can form no idea where the gas came from, except from the fall in Bulman's bord; it had been falling all the morning. Bulman came to Turnbull that morning to tell him the goaf was working in his (Bulman's) place. Turnbull went back with him.

George Turnbull recalled and examined by the Coroner: Did you go back with Bulman?—Yes.—Was it after you fired the shot?—Yes.—By Mr. Bowser: For all it was working it gave off no gas?—It gave off no gas.

George Short's examination resumed: I think Bulman would start working again after seeing Turnbull. I think the gas that fired came from a little seam lying above the High Main. I have seen the little seam in Gosforth drift.—By Mr. Dunn: The little seam lies about 6 or 7 ft. above the workings in the Gosforth drift. I saw it by a fall of stone there.

Mr. T. E. Foster, viewer at Sention Delaval, said: The accident at Coxlodge occurred on March 6, and I went down the pit two days afterwards. I was requested by Mr. Bowser to go down and examine the workings. I came from the shaft to the point where Leonard's cross-cut and the Gosforth drift railway-way diverge. I then proceeded from that point to the workings in Leonard's cross-cut way. The first place I came to was Bell's bord. I saw that there had been an explosion, but the props and the bord had not been charred. My opinion is that the explosion had been a very small one indeed. I came to the conclusion that this place of Bell's having holed into an old bord that had been partially filled with rubbish, and that a little gas lodged above the stone, and had fired at Bell's candle. I examined all the adjacent bords, and where they were taking off the ends of pillars, and found them all sweet and clean.—Mr. Dunn: Would you let the candles and lamps go on as they were? I would say, if the broken went on working in a short time they would have no candles there at all. If they had gone on another week they would have found it necessary to use lamps there.—Mr. Dunn: Are you quite satisfied that this is a proper system of ventilation? If there were no more goaf formed I would not split the air; but if I got a large goaf I would alter the system of ventilation. But I would remark that, if there had been a crossing at the back bord in all probability it would have been blown out by the explosion, and the same number of lives sacrificed.

John Collinson: I live at Kenton, and have worked twenty-six years as a coal-hewer at Coxlodge Colliery. I am employed there now. There is a part of the evidence I wish to give an opinion on. There was a false construction put on Mr. Turnbull's statement. He did not say there was a fall. The system of ventilation at Coxlodge Colliery, in my opinion, is wrong in bringing the air on the lamps and have it return on the candles.—Mr. Foster: That is not the case.—Witness: I have told Mr. Johnson it was unsatisfactory to use naked candles so near the lamps. According to my idea, I would have a crossing to take the air from the cross-cut into the main return. I would not persevere in using candles in any part of the pit workings.

Wm. Hann: I live at Faverdon-square. I have been employed in Coxlodge Colliery two years past. I have been working lately in Gosforth drift.—Am a deputy. I am aware of a small seam above the main seam about two feet below the top, where the distance varies. I cannot say whether that seam extends to Leonard's cross-cut. I was in Gosforth drift when the explosion occurred. There were eleven men there at the time. Seven of them escaped. I went and found the men were all out, and then I examined the place; I found one of the pillars was foul. After that the after-damp came. The ventilation was interrupted, and that caused the foulness I speak of.

The jury returned a verdict of "Accidental Death," and recommended the doing away with naked candles.

It appears that a goaf was being formed, the men having been engaged three weeks in taking off pillars; but no great falls had, perhaps, taken place, although, according to the evidence of Short, it will be seen that the "goaf was working" that morning, the deputy being sent for in consequence; and he says also that "Bulman's bord had been falling all the morning," so that it does not seem very unlikely that the gas might come off from those falls, even if they did not extend more than 4 or 5 feet, as stated by some of the witnesses.

The state of the barometer has not been at all noticed in reference to this explosion. The weather, it must be noticed, was very exceptional for the season, it being extremely warm during the whole week. The barometer had not, however, fallen much during the week; it had, indeed, been very steady. The thermometer, on the contrary, had risen considerably.

REPORT FROM DERBYSHIRE, YORKSHIRE, AND LANCASHIRE.

MARCH 12.—The festivities in connection with the Royal Marriage have completely interrupted business transactions throughout the week. The demand for iron of good quality is increasing, and the augmented demand is felt sooner on account of the general lowness of stocks. Bars and plates are in good request, and in a short time a very considerable demand for rails is anticipated, owing to the probability there is of the construction of new lines. Several projected lines now before Parliament are looked upon in a favourable light by the committee on railways, and a belief is entertained that fewer will be rejected this session than has been the case for some years past. The demand for railway springs is very active, and there is an increased enquiry for these articles. The armour-plate trade continues to be very active, and the public were treated on Tuesday with a sight of an armour-plate in the procession which passed through Sheffield. It was an object of great interest, and was one of the finest specimens of work turned out of the Atlas Works. The Steel Trade is on the more for the better, and we hear that the machinists generally are brisker, many orders being in hand for machines for the export trade. The Coal Trade has experienced a move for the better, so far as regards demand for marine and locomotive purposes, but until the cotton trade assumes some activity we cannot hope for a good trade. The Derbyshire coal is increasing in favour for gas making, and we have had another contract for a large quantity for that purpose.

The unfortunate accident at Clay Cross some time ago, by the inundation of one of the pits, will be well remembered. The company have now, however, succeeded in putting down an immense engine, which it is calculated will drain a large tract of mineral ground, and prevent the future possibility of such a calamity. This ponderous machine, which is now at work, was manufactured by the Butterley Company, near Derby.

The two men injured by the fall of the cage at the Foxley Oaks Pit, Derbyshire, are not yet sufficiently recovered to be able to give evidence respecting the death of one of their comrades, James Sherrinell. It would appear that the colliery was supplied with J. Kaye Hampshire's patent safety apparatus, but that owing to a fire at the bottom of the shaft the conductors had become charred, and lost so much of their solidity as not to be able to hold the grasp of the grippers. There is a divided opinion respecting the utility of these safety apparatuses, but until the jury in the inquest have enquired into the accident it may probably be best to avoid any further allusion to them.

The Derbyshire lead mines are, on the whole, very quiet. Mill Dam is expected to have a good sale of ore at the next pay. North Derbyshire still under a cloud. Eyam

is looking better, and the opinion prevails that it will continue to improve. The other mines are doing tolerably well, but there is a lack of enterprise, just now to bring them out. The local stock and share markets have been dull, and a little business done in a description of stocks. Money is more plentiful, but speculators operate very cautiously.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

MARCH 12.—There is nothing new to be said about trade this week; in fact, it appears almost a violence to mention so hard matter-of-fact a subject amongst any assemblage of men, for all hearts are so brimming over with loyalty and chivalry, and thoughts of golden hair and ravishing smiles, and winning looks and graceful movements, Danish roses and Baltic pearls, that iron and coal, and such common matters, appear barbarous and repellent. So let it be said that nobody cared about doing anything particular this week, except getting up illuminations, bonfires, banners, and garland, treats for the old and the young, processions and other festivities; and people have not been able "to go to bed till morning;" and dining and dancing, and a general exaltation of sentiment; besides the exaltation which unbounded champagne, &c., occasions, are incompatible with discussion of such dull, dry subjects as the price of pigs, the demand for plates (some plates have been in great request), or the tightness of hoops (some of which, by the way, have collapsed). Suffice it to say, that there has not been very much done this week, and the inconvenience is less than it might be desired it should be.

The Black Country, as the coal field of South Staffordshire is called, and the Pottery district, have not come a whit behind the most quiet, clean, and ancient city in their celebration of the happy event accomplished on Tuesday; and this is only a real and natural expression of the hearty loyalty which pervades all classes at present. One event of the week happily links the festive events at which the nation has been rejoicing with those matters with which the *Mining Journal* more distinctly deals. On the day of the Royal marriage the High Sheriff for the year, Mr. Thomas Bagnall, now of Newberrie-park, Hertfordshire, but until a year ago resident in South Staffordshire, and until a few years back a member of the eminent firm of John Bagnall and Sons, ironmasters, entertained upwards of 1000 of his friends at breakfast, and rode in procession, followed by vehicles 270 in number, to Wolverhampton, whence he went by special train to Staffordshire to meet the Judges of Assize. This is the third member of the iron trade who has been elected to this ancient office in Staffordshire. It would be hard to find a gentleman worthier of this, or any other honour, than the present High Sheriff, who in every relation has won golden opinions, and whose sons, two of whom are building extensive works in the Cleveland district, follow in his footsteps.

REPORT FROM MONMOUTH AND SOUTH WALES.

MARCH 12.—There is a great divergence of opinion as regards the future of the Iron Trade. Some maintain that the large purchases made at the last quarterly meeting have not been of practical benefit to the trade, as a fallacious idea got abroad that a vast improvement was about taking place.

The expectations then formed have not been realised to the extent anticipated, and hence the slight dulness which has since taken place. Many others are of opinion that the improvement witnessed during the last four months is only the prelude to a still greater one, and that the present state of the market is the result of a temporary depression. In proof of this, it is only necessary that I should refer to the additional furnaces now in blast, as compared with what was the case 12 months ago. Although such an increase has taken place in the make, and the orders given out and accepted at the commencement of the quarter were unusually large, yet the ironmasters are not badly off for orders even now at the close of the quarter, which augurs well for the next three months. The enquiries from the once United States are on the increase, and several cargoes have recently been shipped to northern ports. Whether the war continues or not, makers look for a larger trade with the Northern States, more especially if the Morrill tariff be modified, as expected. The mildness of the season will enable the early opening of the Baltic trade, which cannot fail to have a beneficial effect. Upon the whole, therefore, the prospects of the trade are encouraging, and hold out hopes that the predicted favourable future will be realised to a considerable extent.

The Coal Trade is gradually recovering from the late temporary depression, and the collieries are more regularly at work. The advance in freights, caused by the scarcity of vessels, is still felt, and merchants find some difficulty in executing the orders in hand. As an instance of the advance in freights, it is only necessary to mention, as an example, that the rate to Plymouth has increased from 5s. 6d. to 7s. 3d. If the present calm weather continues, however, a large number of ships are expected to arrive, and freights will fall.

An interesting return has just been issued of the shipments from the Bute Docks, Cardiff, which shows that the coal and iron exports from that port are steadily on the increase. The following is the return referred to:—

	Iron.	Iron ore.	Coal.	Coke.
1861Tons 187,983112,5751,888,69516,316
1862201,952125,4282,065,2788,109

Several changes are about to take place in the management at the Risca Collieries. Mr. T. Phillips, jun., the general manager, is about to leave, and Mr. A. S. Palmer has been appointed to fill the position. Mr. Phillips, jun., also contemplated the early opening of the Baltic trade, which cannot fail to have a beneficial effect. Upon the whole, therefore, the prospects of the trade are encouraging, and hold out hopes that the predicted favourable future will be realised to a considerable extent.

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Messrs. W. J. Clapp and N. Coats, of Nant-y-Glo Ironworks, have just secured a patent for an improved principle of armour-plates, for vessels, turrets, targets, forts, and other structures in which armour-plates are or may be used.

THE SOUTH WALES SHIPPING PORTS.—There has been a good amount of business done in the various shipping ports of South Wales during the month of February, and from present appearances there appears every prospect that the exportation of iron, coals, and other mineral productions will increase rather than diminish. The American war has, of course, materially affected our commerce with the United States, but the large demand which exists for bars and rails from Spain, Italy, Portugal, France, and other continental states, goes a far way to counterbalance the loss of the American trade. Several important lines of railways have just been sanctioned on the Continent, and there is every probability, therefore, that the orders for railway iron will continue for some time to come.

CARDIFF.—Compared with the corresponding month of 1862 and 1861, the trade of this port for the past month of February was exceedingly active, and the exports far in advance of the average trade at this season of the year. Although there was a good coasting trade done, the principal prosperity was in the foreign trade. From the statistical returns which have been published, we find that during the month of February (which it should be remembered was only 28 days) no less than 331 ships cleared out for foreign ports, which vessels carried 115,890 tons of coal, 12,669 tons of iron, 632 tons of coke, and 1911 tons of patent fuel. This shows an increase as compared with the previous month of January of 30 ships, and about 12,000 tons of coal, and 300 tons of iron, and a considerable increase in the cargo of coals and coke. The total foreign exports for the first two months of the three years show the following:—For 1863, 218,896 tons of coal, and 22,197 tons of iron; 1862, 203,946 tons of coal, and 22,048 tons of iron; and for 1861, 174,334 tons of coal, and 20,790 tons of iron. There is a large number of vessels still in the docks awaiting cargoes of coal and iron, and during the first week of the present month there were upwards of 25,000 tons of coal, and about 3500 tons of iron exported, the principal portion of the iron being for the Portuguese, Spanish, and French ports. Whilst referring to the trade of this port, it may not, perhaps, be considered out of place to mention that Capt. Dornfort, R.N., dock-master of the Bute Docks, has just received a letter from the Admiralty, in which it is stated that he is only right to mention that during this long period he has given the greatest satisfaction to the shippers, merchants, and brokers of the port generally.

NEWPORT.—This port has done a good stroke of coasting business, but its foreign trade has been slack; nor can we wonder that its foreign trade still continues to decay, for the apathy and indifference of its governing bodies are most remarkable. The shipkeepers are complaining, and certainly not without good reason, of the dulness of the times, the newspapers deplore the falling off in the trade of the port, and all admit that something must be done, but, strange to say, nothing is done. One of the largest tradesmen in the town, writing to a friend, says, "Seriously speaking, the times are so bad that I shall be soon compelled to follow the example of others, and go elsewhere, unless a change for the better takes place. Our foreign import trade is almost gone, and vessels of 800 or 1000 tons barely find a sale in our docks." We know that interested parties affirm that the depression in the shipping trade is but temporary, and that trade is not so bad after all, but facts and figures cannot be gainsaid. It cannot be denied that the indifference of the harbour authorities rendered necessary the removal of the contract with the Royal West India Mail Company, some few months ago, to Cardiff. Nor can it be disputed that the quarterly returns of the trade of the port show a gradual decline in the foreign trade. Newport still enjoys a good coasting trade, but we say again its foreign trade is on the wane, and, unless active steps are speedily adopted, its merchants, shippers, and shipkeepers will have to lament and deplore still less prosperous times.

SWANSEA.—The trade of this port still continues flourishing, so much so that the Vale of Neath Railway Company have recently completed two more large and powerful coal drops in the South Docks, and is in a very forward state, and will be ready for work in a few more weeks. The harbour trustees are also erecting a powerful iron hoist at the South Docks, in order to meet the requirements of the large iron ore trade which is rapidly springing up in the port. The usual monthly meeting of the trustees of the harbour was held in the Council Chamber, on Monday last, when the statistical returns of the trade of the past month of Feb. were produced. From these returns we find that the total number of ships entering the port for the past month was 397, with an aggregate registered tonnage of 31,885 tons, and the total shipping rates received 150,075. 1s. 1d. Classified, the trade consisted of the following:—Coasting ships, 212, with an aggregate tonnage of 18,562 tons; European, 185 vessels, of 21,930 tons, and foreign 27 vessels, of 11,066 tons. During the corresponding month of 1862 the number of vessels entering the port was 465, with an aggregate tonnage of 38,254, and the shipping rates 126,112. 12s. 9d. These consisted of 228 ships, with an aggregate tonnage of 19,121, engaged in the coasting trade; 211 ships of 25,391 tons European, and 27 ships, of 1842 tons, foreign trade. There has thus been a slight decrease upon the past month, as compared with Feb., 1862, in the number of ships and tonnage, but an increase of about 2600 in the shipping receipts. This arises from the fact that the vessels frequenting the port for the past month were of much larger tonnage than in Feb., 1862. On the whole, therefore, the trade of the month was stated by the harbour trustees as satisfactory; and when the direct Swansea and Neath narrow gauge line is opened, which will be in the course of some two or three months, a very large increase in trade is naturally expected. The first sod of the Llanelly Extension line was cut on the 10th inst., last

Tuesday, and this line, when complete, will open up to the sea a large coal district, which hitherto has been, comparatively speaking, useless and unworked; and thus Swansea has every prospect of doing a much larger amount of trade than formerly.

NEATH.—The official returns of the trade of this port for the past month have not yet come to hand, but, from the enquiries made, there is no doubt but that quite an average trade has been done. Since the opening of the British Ferry Docks a progressive trade has resulted, and there can be no doubt but that the shipping trade of Neath will materially increase consequent upon the additional railway facilities which are about being made, and which will develop the mineral resources of the district.

LLANELLY.—This port has done a good business, both foreign and coastwise, during the past month. There are many elements of increased prosperity in connection with this port, and the merchants transacting business here are most sanguine as to the state of trade in the future.

TRUTHS' ECHOES, OR SAYINGS AND DOINGS IN MINING.

The general holidays consequent on the reception of Her Royal Highness the Princess Alexandra in the City on Saturday, and that of Tuesday last, when the marriage of His Royal Highness the Prince of Wales with the Princess was solemnised, created a total suspension in the Mining Share Market; in fact, so much has the public mind been engaged in the ceremony and its associations that up to yesterday and to-day the transactions of the week appear to have been of a very limited character.

WHEAL SETON and COFFER HILL have been in good demand at advanced prices, although there have been some fluctuations.—WHEAL BULLER, TINCROFT, and ILLOGAN have met with buyers, and the two latter have been rather largely dealt in.—SOUTH CARN BREA and NORTH BOLCOATH have been in active demand.—EAST CARN BREA, COOK'S KITCHEN, and EAST BASSETT have receded, and more freely offered.—CARNACK, STRAY PARK, and NORTH CROFT are a little firmer.—SOUTH AFTY, NORTH TREKREBBY, and NORTH DOWNS have been done at lower rates.—EAST ROSEWARNE and WHEAL HARRIETT, although subject to slight changes, find ready buyers at minimum quotations.—NORTH ROSEWARNE have advanced, and appear firm at present prices, resulting from market operations.—GREAT WHEAL FORTUNES have been freely enquired for, and several transactions effected at improved rates.—BASSETT and GREYLLS and WENDRON CONSOLS have advanced, and are in good request at present quotations.—WHEAL GREYLLS and PROVIDENCE are sought for at buyers' figures; whilst WHEAL MARGARETS are more freely offered.—NORTH BULLER, WHEAL GRENVILLE, and EAST WHEAL GRENVILLE have changed hands at quoted prices.—SOUTH CARADON have been in request at quoted prices.—EAST CARADON have receded in consequence of the falling off in the 70 east.—LUDCOTTS and WEST CARADON have been in good demand at slightly improved rates.—GLASGOW CARADON, HEREDSFOT, TRELAUNY, and MARY ANN find purchasers at lower prices.

WHEAL EDWARD: The recent discovery may be deemed one of more than ordinary importance. The lode (called the new lode) is presumed to be the Old Phoenix and the old main lode, which was worked some 40 to 50 years since by the late Messrs. Williams, of Scourie, to a very large profit. This lode has been intersected by the 50 cross-cut south, and, so far as seen, is worth fully 30 ft. per fathom; but the south wall has not yet been reached, and being whole and in entirely new ground, and travelling the whole length of the set, presents a new phase altogether in the future prospects of the mine. I think the deep adit driven through Wheal Arthur will unwater this lode to a considerable depth. The mine generally is reported to be looking much better. The shares have been largely dealt in at higher prices, in consequence of improved prospects.—At EAST JANK the prospects are very encouraging; they have recently intersected the western lode 14 ft. under the adit, and opened upon it north and south, where it is found to yield fully 10 cwt. of lead per fathom. This lode in the adit was productive of a fine course of lead for a considerable length, and, no doubt, will be found holding down as now proved in the 14. The adit driving north of the western and counter lodes continues to look highly encouraging, there being a very promising lode in each end, especially in the western, which is 2 ft. wide, with fine stones of lead, and showing every indication of an early and great improvement. A contract has been entered into with Messrs. Williams, of Fernan, for an engine, to be placed on the western lode, which has proved so productive in the adit level. They sold on the 9th 30 tons of lead, realising 4067. 7s. 6d.

EAST CARADON: The official report of this week shows a falling off in the 70 east, on the counter, which may account for the decline in the shares. The 50 east is worth 80 ft. per fathom; 60 east, 157; 70 east, 90 ft.; 70 west, 20 ft.—New Lode: 60 east, saving work; 70 east, 157; 70 west, 81.

CHENOR: The lode in Cock's shaft continues large, and is estimated to yield 2 tons of molybdenum and copper ore per fathom, or 4 tons for the length of the shaft, and in going down presents more favourable appearances. The work, being coarse, is valued at from 4 ft. to 5 ft. per fathom; but the sales are the best evidence as to the value of the ore. The 72 east is looking more promising. The shares have improved, and several large transactions have taken place, but fluctuations have followed.—EAST WHEAL RUSSELL have receded, and are now offered at lower rates.

WEST MARIA and FORTESCUE: The new engine-house is expected to be completed on about the 9th proximo, according to a contract, when the engine will be ready to be fixed. The lode at the 15 ft. level is 15 ft. wide, carrying a fine course of ore, with every other characteristic for a great and important discovery.—At DEVON CONSOLS preparations are being made, if the work has not been commenced, to drive further north on an old cross-cut already extended some 120 fathoms to intersect this lode. The level was taken up some years since, and abandoned after that drivage. There is another set to the west that should keep their eyes open.

CONKURA (Tin): The prospects of this mine are reported to have greatly improved; the nature of the ore is of the most approved description, and now in full operation, and will greatly facilitate future returns. The shaft is now sinking below the 60; the lodes are more than ordinarily large, and impregnated with tin throughout; and the nature of the ground is easy, which considerably lessens the expenditure in preparing the product for the market. There is an extensive run of mineral ground laid open, and, from the character of the lode in the bottom level, they are fully justified in anticipating a good and productive lode at the 70, when regular and increased returns of tin will be made, with the most sanguine hope of making large and permanent profits. Last Friday they sold 4007. worth of tin, being the produce of about four weeks, making 8000. worth since January, when the steam-stamps commenced working, with very imperfect dressing appliances. But now that the whole is in full operation, increased returns will be made. It is gratifying to learn that the company is overcoming the numerous difficulties they have had to contend with, and their energy and perseverance are likely to be well remunerated.

EAST TREKREBBY: Very little change has taken place since last noticed. The 55 east continues to look very encouraging. The winze has been disordered, but will no doubt resume its character as soon as passed the course. The 40 cross-cut north has not yet intersected the lode.—SOUTH CARN BREA: The new lode intersected by the 68 cross-cut has been opened upon, and found worth 40 ft. per ft. for tin. The stops in the 68 are valued at 30 ft. per ft. Other places continue the same.

EAST ROSEWARNE: The lode in the bottom level west is split at present, but is expected to unite again shortly. The south pit is worth from 9 ft. to 10 ft. per fathom. The 55 west has improved, and worth 20 ft. per fathom. The two stops and western winze in this level are worth together full 80 ft. per fathom. The 111 tons of copper ore sold on Thursday realised 10087., which will give a profit of nearly 2000. for the two months' working.

WHEAL SETON has recently fallen in some important places, whilst others show indications of improvement. The annual winze is reported worth 80 ft. per fathom, and not looking so cheering. The south winze is valued at 7 ft. per fathom, and at present is encouraging. The 140 east is worth 30 ft. per ft., and presents many pleasing indications of further improvement; this is a very interesting point, as they are driving in new ground. The lode in the 140 west is poor. The stops in the end of the south winze have also declined in value. The 50 cross-cut continues dry, consequently are yet some distance from the lode. They are about to resume sinking a winze just above the 60 cross-cut, on a lode valued at 50 ft. per ft.; preparatory to sinking, a few days will be required to clear up the winze, where a quantity of rubbish has been deposited. FRY'S URDAR: The progress which is being made in the formation of this company is more than anticipated, the applications for shares are exceedingly numerous, and genuine expectations. The operations at the mine are most encouraging both at surface and underground, for whilst preparations are making for dressing the produce sufficient is reported to have been laid open to keep the stamps going for a length of time. There is no doubt that the numerous and well-known lodes are quite capable of returning large quantities of tin without the aid of expensive or powerful machinery.—GREAT LAXEY (Limited): The operations are going on most satisfactory and encouraging to the proprietors, and from the large discoveries already made, and the achievement of the most important points laid down in the prospectus when the present company was established, are features in the management and conduct of the company of a most encouraging character. According to the official report of this week there is little doubt of this becoming one of the great leading lead and copper mines of Britain.

From Mr. JAS. CROFTS:—THE QUEBRADA COPPER MINING COMPANY, (Venezuela, South America) was introduced lately, in 17,000 shares, which the eagerly anticipated by the public, and now stand at 50s. paid. Owing chiefly to the 20s. per share, besides the deposits, which has proved onerous to some parties, the stock went to a discount of nearly 20s., from which (the shares in question having been absorbed) they have rallied to 10s. discount, and large investments made in them. The last West India mail has, it now appears, brought highly encouraging accounts from the property—an immense deposit of copper, rich in quality, being fully confirmed, resolving the practical part of the business simply into a question of the means of conveying the ore to the port of shipment some 30 or 40 miles distant. The engineer accordingly reports that a fine tramway is all that is required to get over the present mountain of ground to meet the river, every kind of engineering obstacle being non-existent. The company, in private letters, reports upon the brilliant nature of the mines and their prospects, and it thus follows that time, skill, and energy are only wanting to make the fortunes of some and to enrich others of the shareholders, the few shares in which the concern is constituted offering an excellent basis for confidence on the part of the investing public. To divest these remarks, however, of the element *couleur de rose*, it must be stated that, as another call is due next month, probably of 20s. per share, it may be prudent to wait the result in its action upon the market price of the shares.

The writer continues to watch with some interest the CENTRAL MINERS shares, on which it will have been noticed that the reports from the management have been of late very meagre, whilst within the last week or two the shares have been in demand, and advancing in value so marked that, of course, some cause exists. This mine is situated towards the north of the Minera Mine, but between, and abutting in its boundary on each, is another set, worked by a private company, called the UNION MINERS, in which there is an improvement, and hence, the Union lodes running into the Central, the demand for the latter shares, and but few, if any, being on offer, the writer hopes his predictions as to the success of this mine at no very distant period is assured. In miscellaneous matters, OKEZ Ton and the latest report from the purser (31 inst.) states—"In the 80, back of the lode greatly improved. The north lode is yielding 5 tons of copper to the fathom." There has been some rather large transactions in the shares this and last week. WEST PAR CONSOLS progresses well, and promises to become a first-rate adventure; shares still cheap, attributable, perhaps, to their being 19,000, but mitigating the amount of calls when wanted. Tin also is advancing in value. Another mine in Mr. J. H. Marchant's office is also well worth attention—TYWANNALVAE tin 6000 shares of 5s. paid—in the established copper district of Redruth. It may prove interesting to note that under the name of UNITED HILZA the late Prince Consort (it being a Duchy mine) owned this property, and worked it on behalf of the Prince of Wales, which fact may account for about five-sixths of the shares being held at present by two members of the *haut ton*—Lord S. and General H.; and thus those who possess aristocratic predilections may gratify them by becoming shareholders. The shares are, however, not to be easily obtained. WHEAL SITNEY CARNVAL made a call of 10s. per share. The monthly costs are moderate, but it would be desirable to see them rather more closely kept. The latter part of the report is very encouraging, as follows:—"The lode in the bottom of Bonder is from 6 to 7 ft. wide, and of a decidedly promising character, being thoroughly mineralised, and containing a little tin. From the indications of the lode, as at present constituted, we, as well as our neighbouring agent, who has examined it, are in expectation of realising a rich discovery of tin by a little

deeper development, and we are confirmed in this by the fact that our neighbours on the Carmichael lode, 20 fathoms west of our boundary, have a pitch working on tribute at 4s. In 17, the matrix of the lode in each place being precisely of the same character." It is further to be added that the great point in the lode is to reach the Carmichael lode, in Great Wheal Fortune, and an authority reports to the writer that it may be 20 or 30 fathoms distant. The shares being very low in price are, therefore, worth attention, more particularly from present holders at higher rates. Last report, much improved.

Advances have taken place in EAST BASSET, NORTH ROSEKAR, WHEAL LUDCOTT, and EAST RUSSELL. This last mine is surely progressing towards such success as may ultimately place it in the Dividend List; whilst in the other three fluctuations either way may be looked for, and unless will be holders who neglect the opportunity to realize any mine share at a large advance. Tincroft advance, on the other hand, may be demonstrated as perfectly legitimate—the tin lode exhibiting wonderful success; besides which it is reported (exactly) that Cook's Kitchen, which adjoins Tincroft, has encroached in their bottom levels upon their neighbours boundary to the extent of 3000 ft. worth of ore. Of ILLGON, as the newly-installed co-partner of Tincroft, it may be premised that its prospects, arising out of these circumstances, are very much improved, as shown by the great demand for, and advance in, the shares. The management of this mine, with a view to enlighten the public on its exact position in the midst of some of the most notable of the Cornish dividend mines, have issued an excellent map of the district, which it would be well for each shareholder to possess, if only to contrast with the want of maps in the course of time, and, more illusory at present, and, although it may involve some study and experience to appreciate, it cannot but be ranked as a useful adjunct to the particulars required on the real whereabouts of all new adve.

Later: LUGG (shares) have given way in price. SOUTH CARB BREA rising in value, the late discovery being considered important. NORTH DOLGOUTH improved. EAST CARB BREA lower. WHEAL HARRIET, steady at a lower price. There is a stillness in the market, and an indifference to dealings, probably arising from a sort of lassitude after the late public excitement in which all Great Britain has participated.

From Mr. EDWARD COOKE:—The market has been very good all the week, and a large amount of business has been done, both in dividend and progressive mines. Fluctuations have taken place to a great extent in several mines, including EAST BASSET, GREAT FORTUNE, COOK'S KITCHEN, NORTH ROSEKAR, LUDCOTT, WEST CARADON, WHEAL EDWARD, &c. The standard for copper ore has again slightly advanced, while the market for tin ore has been very firm. To illustrate the firmness of the price of tin, I will state that a parcel sold by Wheal Grylla Company during the current week realized 37. 17s. 6d. per ton more than the last sale, about a month ago. These shares have been in good demand, but, owing to the firmness with which they are held, the business done in them is of a limited character, although there is not a safer mine to buy into as an investment. The great rise that has taken place lately in the price of Tincroft shares may appear to some unaccountable; when, however, we come to analyse the matter, very tangible reasons may be adduced for the advance. Some few months since it was discovered that the Cook's Kitchen Company had, through error, taken away many fathoms of valuable tin ground beyond their boundary, and belonging to Tincroft. This tin was then has been variously estimated between 10000, and 20000; but the intrinsic value of this tin is not of so much importance in itself as that of opening up tin ground in Tincroft sett of a most valuable kind, and may be fairly estimated to yield large returns to the company for many years to come. This is on what is termed Chapple's lode, which in places is 25 feet wide, and very rich. On this lode scarcely anything has been done by the Tincroft Company for a long time past, as the returns have been made from Duncan and other lodes, therefore the returns that have hitherto been made is no criterion of what will be done for the future. In the course of a few months, no doubt, they will increase to 50 tons per month, against 30 to 35 tons that have been usually returned, while the costs will not be increased in proportion. A section has recently been made showing the relative position of Cook's Kitchen Mine and Tincroft, and a reference to it by anyone having only a theoretical knowledge of mining will show at a glance the vast importance of the tin ground to Tincroft, seeing that the Cook's Kitchen Company's workings are close to their eastern boundary, and worth in places 1000, to 1500, per fm., with the tin dipping into Tincroft, and in whole ground for about 60 to 70 fathoms in length. This, then, is the cause of the late great rise in the price of the shares, and I do not consider they have reached their highest yet by a good deal. Still there may be reason to apprehend a great rise. The Tincroft correspondent of the Journal was not slow in appreciating the worth of Tincroft, for after an inspection some 12 months since he stated that, in his opinion, it would be a valuable mine during the present generation, but then he was not aware at that time of the very valuable auxiliary that has been since opened up, and which in all probability will render these mines the most lasting dividend property in Cornwall.

DRAKE WALLS still maintain their price. This is one of the mines that will be favourably affected by the advance in the price of tin. A company has been formed for reworking the adjoining mine. During the last working, some few years since, it is generally admitted that the mine was not a fair trial, although a good deal of available work for the present company has been done. The mine has been reported on by Capt. Gregory, of Drake Walls Mines, who, I need not add, stands well in the estimation of all who know him as a tin miner. These mines are introduced to the public on very easy terms, thus affording them a good opportunity to join a fair speculation at a moderate price. The property is named the Prince of Wales Tin and Copper Company, in honour of His Royal Highness, who is lord of the mineral rights. LUDCOTT has advanced considerably during the past few weeks. There was no real cause for the decline, and I would caution the shareholders not to be induced to part with their interest on any speculation. The mines are steadily improving. The prospects of a new discovery of silver are much better than for a long time past, while the mines for lead alone are worth the whole of the money they are at present selling for. CARADON UNITED is still improving. It will be seen by-and-by that this property has been unduly overlooked by the public. As I stated before, no young mine in the Caradon district holds out half the prospects of success that these mines do.

MINING NOTABILLIA.

(EXTRACTS FROM OUR CORRESPONDENCE.)

CORNUBIA last week sold one month's tin, 5 tons 14 cwt. 1 qr. 25 lbs., at 69l. 10s. per ton—397l. 15s. 10d.—very nearly paying cost. Four large lodes are being worked up within 20 fms. from north to south. The reserves underground are, to use the words of Capt. Chas. Thomas, "very extensive, and can be worked out at a cheap rate." On sinking the flat-rod shaft a fine lode has been discovered, 6 ft. wide, and improving as they go down between the 60 and 70 fms. levels. Thirty-two additional heads of steam-stamps will soon be at work, bringing the number up to 70, when the returns will be more than double, at little extra cost, and good profit made. This fine property must soon take a prominent place among the large tin mines of this county.

BASSET AND GRYLLS, WENDRON CONSOLS, AND NEW WENDRON.—The improving condition of these mines is causing some excitement in the neighbourhood. It is expected the next quarterly dividend from Basset and Grylla will be 30s.; and at Wendron Consols increased returns, it is fully expected, will admit of dividends being shortly resumed. New Wendron is a mine adjoining these, and possesses great interests. Good improvements are also reported here.

ANGLESEA.—At last it appears that this island is to be done justice to by mining men. In various parts north of the Great Parys Mines, explorations are going on, and lodes of great promise being laid open, which are traced for miles in extent. These being intersected by the same cross-courses as the Great Parys, every probability exists that many valuable courses of ore will be opened up. The facilities of driving deep adits from the sea level upon the outcrops of the lodes into the high hills and cliffs, reduce the cost of exploring to one-half of what is usual. In one place, between Amblew and Bull Bay, rich stones of copper and silver-lead are produced from a vein several feet wide, in good clay-slate. "Mona's" letters, or something else, have stirred up mining speculators, and awakened them to the importance of the mineral wealth of this neighbourhood. As we are to have a railway also to this remote part of Wales, capitalists will be at hand to visit the mines in which they are so interested, or by steamers, which now run from Liverpool. We have seen some of as rich copper ore from one or two of these new mining properties as any from the Great Parys Mines, and as these veins are parallel to those being explored, the old rule of "ore against ore" observed in Cornwall, is likely to hold good in this island, where the largest deposits ever found ruled the price of copper for many years, and is still making large returns and large profits, after a period of unparalleled success in copper mining for one hundred consecutive years.—CORNISH MINER.

CRANE (Camborne).—A sample from the lode in the winze now sinking on the Brian lode at the adit has been sent to London during the past week, and gives evidence of a splendid lode at the depth; two cross-cuts are now being driven to cut this lode, one at the 50 fms. level, already through the elvan, and very near the lode, and one at a shallower level.

CALV, BLACK is looking exceedingly well, and sold 10 tons of tin this week for 397l. 15s. 10d. This is one of the cheapest tin mines to buy into, as a great advance in the price of shares will take place—perhaps, to what they were once, 25l. each—and the mine give good profits.

CLOOSHGREEN LEAD MINE.—This property is situated within a short distance of Oughterard, in the county of Galway. The country consists of granite, gneiss, hornblende, mica-slate, quartzite, and primary limestone. Mr. T. C. Gregory, C.E., of Glasgow, has examined the property, and states that the lode seems to be an important one for the deposit of lead, and he thinks it would be a pity to see it remain unexplored. Captain Peter Floyd reports that as a mineral property he can highly recommend it to any parties speculating in mines, as there is more than one lode, and they are crossing each other. In all cases of mining, where the lodes form a junction, large deposits of mineral have been found, and it is so in this case. The lode is of a fine quality, and is composed of clay, pyrites, and quartz. In a time rock, the caunter lode runs north and south; and where the lodes come in contact large deposits of lead will be found. There is no doubt as to the probability of its making a good mine if it were worked in a systematic manner. Mr. Thomas Struthers, the vice-president of the Glasgow Geological Society, states that the specimens of lead and copper ore from Clooshgreen exhibited there were very much admired, and of excellent quality.

WHEAL GRENVILLE.—Several important improvements are expected in this mine very shortly, as, in addition to the rapid approach of the 120 to the ore ground, it is expected that the 150 fms. level will soon be cut in the sett. Other lodes are also likely to be met with very shortly.

EAST JANE.—They have cut the lode in the 14 at two points, north and south of the shaft; lode 4 ft. wide, and of good value at present. A sale of 30 tons of ore was made on the 9th inst.

EAST WHEAL GRENVILLE has excellent prospects, and is one of the most promising young mines in the Camborne district; its position—being situated between South Wheal Frances and Wheal Grenville—renders success as almost certain. In the 55 east lode is 3 feet wide, and worth fully 1 ton of good copper ore per fathom. In all probability a great improvement may take place shortly, as the lode presents precisely the same characteristics as the rich lodes of the neighbouring mines. The tin department looks well, and the next sale will be about 8 tons of that ore. A cross-cut is being driven north from the 45 to intersect the same lode that will be opened in the 80 cross-cut at Wheal Grenville.

ILLOGAN MINES.—Operations are going on here very favourably, and the engine will shortly be set to work.

THE PENROSE LEAD MINE.—An interesting discovery, likely to lead to important results, and the means of giving employment to many of the inhabitants of Portlaven and its neighbourhood, has recently been made at the above mines by Mr. John Hunt, late director and a large proprietor of extensive lead works in France. Both for the abundance and high quality of the ores, the Penrose lead district has various periods occupied a prominent position, but at no period of the working of the mines have the carbonates and phosphates, which exist in considerable quantities, been appreciated for their commercial value. Mr. Hunt having obtained a grant from Mr. J. J. Rogers, M.P., to work what appeared to have been neglected above the adit level, discovered a mass of carbonate of lead in the side of a cross-cut, which, in being followed up, revealed the existence of a side lode, running nearly parallel to the old workings, and only 3 or 4 fathoms from them. Nearly one-quarter part of the ore now

being extracted from this discovery consists of carbonate of lead, the remainder being the ordinary sulphide, rich in silver, the ore altogether realising above 15l. per ton. This important discovery by a stranger to the district affords a striking illustration of the justice of Prof. Hunt's views regarding the necessity of imparting to the miners of our country a better knowledge of the requirements of their profession. Had the managers and miners been better acquainted with mineralogy, Wheal Penrose would not have been abandoned with, perhaps, its most important feature undeveloped. With the characteristic liberality of his family, Mr. Rogers has granted the cut at 1-20th of a share, and this, combined with many other favourable circumstances, will, doubtless, encourage Mr. Hunt and his friends to prosecute the works with vigour, both to their own and the public advantage.

ST. JUST CONSOLS.—I am glad to notice that the shares are rapidly being applied for, and as the list is so fast filling up, shares will soon be allotted. The mine is in a good tin district, and well worthy the attention of capitalists for a safe and sure investment.

GOURECK SANDSTONE COPPER MINE.—In prosecuting the works here, some most extraordinary deposits have been developed. Copper of surpassing richness has been met with, not in isolated or occasional patches, but as plentifully as currents and raisins in a Christmas pudding. Nothing could be wanting to make this a first-class property but unanimity in council, which necessary element has not prevailed from the very outset; it is to be hoped, and it is believed, measures will shortly be adopted to realise so great a desideratum.

COALBETRA AND BOND MINES.—In the Journal of last week an error was made in reference to the engine recently purchased for these mines. It must be obvious, however, that in speaking of its removal the words "old situation" must be incorrect. The engine has never been anywhere but at the Manchester Corporation's Waterworks. The contract for its removal has been entered into, previous to which it will undergo a minute and thorough examination by first-rate Manchester mechanical engineers.

NANT-Y-LAGO is opening out remarkably well. The 20 is being extended both east and west in a very fine course of ore, producing not only lead in large quantities, but silver-bleed of a very rich character. An important feature in this mine, and one which should not be overlooked, is the fact that in driving the 10 ft. sicken-slice was discovered. This, it is well known, is an infallible indication of large mineral deposits in depth. In the opinion of eminent practical miners, it is almost an absolute certainty that this mine will be one of the richest in the Principality. Many mines in Cornwall, with not one tithe of the present richest or future prospects of Nant-y-lago, are selling for 20,000l., 30,000l., and 40,000l.

At WEST WHEAL TREVELYAN the flat-rods are completed at Charles's shaft, and sinking will now be resumed. The lode in the 58 west is worth 7l. per fm., and the prospect of a good course of ore at no great distance is extremely favourable. Two winzes are about to be sunk—one in the 45, and the other in the 58; and as both will go down in a run of ore ground the future samplings it is confidently expected will materially increase.

At NEW WHEAL PROSPERITY the operations are being vigorously pushed forward, and the prospects are of a very encouraging character. The lode in Watson's shaft improves in depth, and in the 30 fm. level east and west the lode is also looking better. A cross-cut is being driven south from this level, to intersect another lode, which will be reached in about two months' time. The new shaft, to prove Wilson's lode, in the western part of the sett, is going down in a favourable channel of ground, and the lode will be reached 16 fms. deep in about six or eight weeks. This lode, where opened upon at surface, is 4 ft. wide, and worth 1 cwt. 1 qr. of tin per 100 sacks. It is expected the first 100 tons of tin will be 6 tons.

MINING IN THE WEST OF IRELAND.—It is satisfactory to learn that the mines in the West are assuming a more lively aspect. The great change that has taken place in the bottom of both the Great Cappagh and Ballycunnagh Mines (both on the lands of Mr. T. Saunders Cave) is likely to throw fresh vigour in mining in this much-neglected part of the country. A great improvement has also taken place at the Gurtavall Mine, where they have met with a rich bunch of yellow copper ore; it is also reported that the Ballydehob Mine is about to resume working with great vigour at the earliest period. The Bandon Barytes Mine is raising a great quantity of barytes, and the Roaring Water and Crookhaven Mines are looking very promising.

NEW CROW HILL.—We sampled on Friday from 3½ to 4 tons of lead, for which I hope to receive tenders to-morrow. The falling off in the quantity is not from the produce being inferior, but from the men in the stoops being obliged to open out the lode, during which time no ore was breaking.

At WHEAL GRENVILLE, the caunter lode in the 80 is still worth 2 tons of good ore per fm., and the rise in back of this level will yield 3 tons per fm., rendering the chances of a good lode in the next level (the 60) as pretty certain. As soon as the 60 is opened a cross-cut will be commenced towards the 64, and as caunter lodes in this district have generally been richest at shallow depths, the probability is that the upper levels in Grenville will open out a fine course of ore. This is the opinion of the agents and of everyone who has inspected the mine. The principal point, however, in the mine at present, is the 80 cross-cut north. It is generally supposed—and from the extensive ancient workings at the surface there appears strong foundation for the assumption—that the West Basset main lode runs through the north part of Grenville sett, and the cross-cut is being driven to prove this. As the lode underlies south, or towards the cross-cut, it is expected to be met with in a few fathoms further driving; and should the issue be successful, the adventurers will possess one of the finest properties in the locality.

Near DEVON GREAT CONSOLS a great discovery has been made in the WEST MARIA AND FORTZECUR MINE: a lode having been discovered with a fine back of splendid gossan, very similar to what the Devon Great Consols lode produced when first discovered. The lode in the 15 fathom level is 18 feet wide, producing about 4 tons of ore per fathom, and the same quantity of sulphur and muddle: a finer lode cannot be seen, and will vie with its rich neighbour—Devon Great Consols. There is a 58-inch pumping-engine and a drawing-engine already on the mine. The neighbourhood will be much benefited by the employment of a large number of men, in consequence of this very valuable discovery.

NORTH DEVON.—It is quite clear that the main part of the middle lode has been missed, the adit level having been driven on what now appears to have been only a branch of the lode, but running nearly parallel with it, and at a distance of only 4 or 5 fathoms from it, so that the main part of the lode is now found to be standing whole from surface, almost close to the old levels, and it can, consequently, be cut at each level in a short time, and at trifling expense. This important discovery has been made by sinking on the course of the lode, from the adit to about 10 fms. below the 10 fm. level. The ground is found to be ore throughout, the winze in places yielding 3 tons of ore per fathom. I hope to catch the same shoot of ore at the 20 fm. level in the course of 2 or 3 fms. more driving. I shall have 20 tons of ore sampled ready for sale in a week or two.

WHEAL POLMEAR is looking well in several points; but the most important one is on the old Gevan's lode, east of the Crockett lode, which is in entire new ground. This lode could not be found to the east of the Crockett lode until recently, when it was discovered in the adit, and there is a cross-cut at the 15 fm. level, which will be under the course of ore. The lode will be cut in a few days; if cut good there is a new and valuable mine to the east of the other workings: 205 tons will be sampled this week.

THE PEN-Y-CLYN MINE has for some time been regularly progressing in its operations. A perpendicular shaft has been sunk from surface 17 fathoms to the shallow adit and thence 18 fathoms to the deep adit, and to bottom level 20 fms., and then below 12 fms.; in all 77 fathoms, of the dimension 9 ft. by 6 ft., which 33 fms. were accomplished in five months. This mine, in its last working, made very considerable returns of lead ore and profit, the workings then being to the west of the griststone band. The present company have pitched the shaft to the east, and in driving the 30, the agent reports: "Feb. 16: Driven last month 10 fms. 4 ft. 6 in., at 55s. I am happy to inform you that the lode is improved since I wrote you last, and is producing saving work, about 4 cwt. per fm., and I hope to see a further improvement. The engine, lifts, &c., are all progressing towards completion.—Feb. 21: The lode in the 30, towards the old mine, is improving, it is now worth 1 ton of lead ore per fm.—Feb. 27: We have had a run from the old mine in our deep adit; it will take some time to clear. The 30 fm. level is driven 3½ fms. in the last fortnight; the lode at present is worth from 12 to 14 cwt. of ore per fathom. It is expected when the old workings are reached, which will be not over six months, that this adventure will prove a success. The direction of the workings is under the supervision of Mr. John Hitchens.

THE EXPLOSION AT COXLODGE COLLIERY—TWENTY LIVES LOST.—(From a Correspondent).—Another twenty lives have been sacrificed by an explosion of fire-damp, yet the result of the coroner's inquest is, as usual, a verdict of "Accidental Death;" the officers and workmen (with one exception) in the colliery swearing that the ventilation was so good that they were laid up with colds; that the mine was as clear as New-castle Moor, and that the working places were quite as comfortable as at surface. It would be of great importance to the colliers if Mr. Thomas Emmerson Forster would state what he considers the proper mode of ventilating a colliery; for wherever there has been a particularly calamitous explosion, he has declared that he would recommend the same system of working to be pursued as before. He expressed this opinion at the Burradon inquest (it should be stated that both Burradon and Coxlodge are worked by Mr. Bower), at the Walker inquest, and now again at the Coxlodge. Now, it certainly seems marvellous, that if a mine be perfectly sweet, clean, and free from gas, that an explosion should occur sufficiently powerful to launch twenty of our fellow-creatures into eternity, though Mr. Forster may have studied the chemistry of gases so deeply as to be enabled to account for these apparently contradictory circumstances. The fact is that Mr. Dunn being the oldest, though by no means the least active and competent, the hope is entertained that there is an opportunity of securing the removal of a stringent and experienced official, and, perhaps, of creating a vacancy for some influential aspirant more in the interest of the masters. Although we do not say that the jury, in the Coxlodge case, would have been justified in finding anyone guilty of manslaughter, there was nothing to justify them in exonerating the officials from all blame. Mr. Maddison, the head viewer at Coxlodge and Burradon, admits that they were making a goaf less than 50 yards from where the pit fired, and he also admits that the air passing through this goaf (for we call it so, notwithstanding Mr. Maddison's wish that it should not be so designated until larger) went directly on to the naked lights, though where they were making the goaf lamps were used, yet Mr. Forster states that the air did not come from the lamps to the candles. John Collinson, of Kenton, coal hewer, called at the request of Mr. Dunn, had been 26 years employed in the colliery, and was employed there now. He wished to say that a false construction was put upon Turnbull's evidence. He did not say there was a fall. Witness thought the system of conducting the air was wrong. He thought it wrong to have the air first coming on the lamps and then the candles. He recommended a crossing to take the air a different course. Witness made several suggestions for the changing of the ventilation. He considered it unsystematic to have candles and lamps so near together. The amount of aid which the Government Inspectors receive from the

coroners in the colliery districts may be judged of by the fact that in the present case the coroner, Mr. Stephen Reed, permitted (after remarking that they had it on oath that there was sufficient air) Mr. Forster to ask Mr. Dunn why he was not down in the pit before the explosion? and how many collieries he went down in a year? Yet all must well know that had there been sufficient air the explosion could not have occurred; that the questions put to Mr. Dunn should only have been put to him by the Secretary of State or the House of Commons. It is much to be hoped that the result of the Whitehaven and the Coxlodge cases will be to prove to our legislators that far more stringent enactments than those now in force must be made to prevent the fearful and unnecessary loss of life in collieries, arising from the false economy of the coalowners, and the facilities open to them for evading the law.

EXCAVATING AND BORING APPARATUS.—Mr. A. Trouillet, of Xertigny, has invented an improved instrument, by which the bottom of a hole may be enlarged. A hollow tube passes down the hole originally bored, and through this a horizontal tool is passed; the lower part of the tube is pierced with a rectangular hole for the passage of the tool, and strengthened by two segments with parallel cords, between which slides the base of the rod. These segments are slightly notched or grooved where the tool is seated, so as to guide it quite horizontally. The excavated material falls by an opening of the tube, lengthwise with the hole. Motion is given to the tool by the pressure of the lower part of the rod, and a tongue gives it a retrograde motion.

IMPROVED FORCE-PUMP.—Mr. F. Escapat, of Paris, has provisionally specified an improved pump, which may be used to raise a large body of water either for drainage or irrigation, as a fire-engine (by fitting injection pipes on to each cylinder or pump barrel), and for many other purposes. It is available wherever steam power is at hand by fitting a connecting pipe to the generator. One workman to feed the fire and the boiler is all the manual labour required, the valves and cocks opening and shutting by means of a float with greater regularity and precision than could be done by the most skilful mechanic. The invention appears to consist essentially in applying the steam to one side of a piston, which forces forward the water with the other side.

STEAM-HAMMERS.—An invention has been provisionally specified by Mr. J. O. Butler, of the Kirkstall Forge Company, Leeds, for improvements in steam-hammers; it relates to the framing or supporting standards, which he makes of wrought-iron instead of cast. In some cases a single piece of wrought-iron is used, and forged to shape, and for large hammers the standards are composed of several wrought-iron plates rivetted together, and strengthened by angle, T, or other suitably shaped bars, as is well known in the making of wrought-iron structures.

THE ANNUAL REVIEW OF MINING, containing official returns for the year from about 200 mines, and a vast amount of interesting information, valuable to investors and speculators, is now ready, and can be had (price 1s.) of Messrs. Watson and Cuell, St. Michael's-alley, Cornhill; at the Mining Journal office, 26, Fleet-street, E.C.; or of any bookseller or newsmen.

India Office.

BY ORDER OF THE SECRETARY OF STATE FOR INDIA IN COUNCIL, notice is hereby given that the DIRECTOR-GENERAL OF STORES FOR INDIA will be READY, on or before MONDAY, the 16th instant, to RECEIVE PROPOSALS in writing, sealed up, from such persons as may be willing to SUPPLY ONE HUNDRED TONS OF FIRE IRON. And that the conditions of the said contract may be had on application at the India Store Office, Cannon-row, Westminster, where the proposals are to be left any time before Two o'clock P.M. of the said 16th day of March, 1863, after which hour no tender will be received. GERALD C. TALBOT, Director-General. India Office, March 2, 1863.

Peruvian Consulate.

PROPOSALS ARE REQUESTED for a CONTRACT to be entered into for the DRIVING AN ADIT or TUNNEL in the MINERAL DISTRICT of the CERRO DE PASCO, in PERU, for the PURPOSE of DRAINING the SILVER MINES OF WATER, or for the ACCOMPLISHMENT of the SAME OBJECT through the MEANS OF PUMPING BY STEAM POWER. Reliable surveys and plans of the ground may be inspected at this Consulate, where also the conditions and terms of the undertaking can be treated of with the Commissioner of the Corporation of Miners, who is authorised by the Peruvian Government to grant its guarantee for the fulfilment of the terms. HENRY KENDALL, Consul for Peru. Peruvian Consulate, No. 11, New Broad-street, E.C., February 24, 1863.

SOUTH-EASTERN RAILWAY—CONTRACT FOR THE SUPPLY OF STORES FROM MARCH 31, 1863, to SEPT. 30, 1863.—The Directors are PREPARED to RECEIVE TENDERS for the SUPPLY of the UNDER-MENTIONED STORES, viz.:—

- 1.—TURPENTINE, SOAPS, &c.
- 2.—IRON, AXLES, TYRES, FORGINGS, &c.
- 3.—GENERAL IRONMONGERY, TOOLS, &c.
- 4.—FILES, STEEL, SPRINGS, &c.
- 5.—SHEET BRASS, BRASS & COPPER TUBES, FINISHED BRASS WORK, &c.
- 6.—TIN, TIN WORK, LEAD, ZINC, and OTHER METALS.
- 7.—GLASS, LAMPS, and LAMP MATERIALS.
- 8.—VARNISH, PAINT, DRY-SALTED, &c.
- 9.—ROPES, CANVAS, BAGS, FELT, &c.
- 10.—COACH TRIMMINGS, CARPETING, CLOTH, HORN-HAIR, TOWELLING, &c.
- 11.—LEATHER, ROPE PIPES, STRAPS, &c.
- 12.—BRUSHES, BROOMS, MATS, &c.
- 13.—WOOD-WORK.
- 14.—SUNDRIES.

Specifications and forms of tender may be had on application, in writing, to the Store-keeper, London Bridge Terminus.

Forms of tender for each contract are printed separately, and parties applying should state the particular contract for which they propose to tender.

Patterns may be inspected on and after the 14th inst., at the Stores Office, Bricklayer's Arms station, between the hours of Ten A.M. and Four P.M.; and any further information required may be obtained at the Storekeeper's Office, London Bridge Terminus. Tenders to be returned on or before the 25th inst., endorsed "Tender for Stores," addressed to the Secretary, London Bridge Terminus. S. SMILES, Sec. London Bridge Terminus, March 6, 1863.

TO ENGINEERS AND OTHERS.—TENDERS WANTED for ONE HUNDRED FEET OF BORING THROUGH CLAY, with the INSERTION of a BORE PIPE, from the bottom of an excavated well in Northampton. The price to include pipes.—Full particulars given on application to C. INESON, Esq., Northampton. Estimates wanted by the 21st March next.

TO MINING COMPANIES.—WANTED by the ADVERTISER, who is a THOROUGHLY PRACTICAL MINE AGENT, a SITUATION, either at home or abroad. Can be well recommended by late employers.—Address, "H. A.," MINING JOURNAL office, 26, Fleet-street, London, E.C.

TO COAL AND IRONMASTERS.—One of perfect respectability, and of 30 years' experience in the MANAGEMENT of COAL and IRONWORKS for leading parties in several districts, having "won" more seams and erected more ironworks than any other man, is OPEN to EMPLOY.—Address, "T. B.," 3, Bank-street, Sheffield.

MINING IN IRELAND.—The PROPRIETOR of the CLOOSHGREEN LEAD MINE, which has been partially developed, and in which a good face of lead has been discovered and is now visible, is DISPOSED to TREAT for the SALE or LETTING of the PROPERTY.—For particulars, address A. M. KELLY, Cloosh House, Oughterard, Galway.

TREATMENT OF SILVER-LEAD ORES AND SLAGS.—THE DISCOVERER of a MEANS by which an INDUSTRIAL PROCESS, NOW TEDIOUS and EXPENSIVE, can be RAPIDLY and ECONOMICALLY PERFORMED, DESIRES to MEET with a CAPITALIST to ASSIST him in INTRODUCING and DEVELOPING the INVENTION. Liberal terms will be offered.—Address, "Plumbum," MINING JOURNAL office, 26, Fleet-street, London, E.C.

NICKEL AND COBALT REFINING, AND GERMAN SILVER WORKS, 16, OZZELL STREET NORTH, BIRMINGHAM.

STEPHEN BARKER begs to inform the Trade that he has the following articles for sale:—

REFINED METALLIC NICKEL. OXIDE OF COBALT. [WIRE, &c.] REFINED METALLIC BISMUTH. GERMAN SILVER—in INGOTS, SHEET NICKEL AND COBALT ORES PURCHASED.

GOLDENHILL, COBALT, NICKEL, COLOUR, BORAX, AND CHEMICAL WORKS, NEAR STOKE-UPON-TRENT, STAFFORDSHIRE. JOHN HENSHALL WILLIAMSON, MANUFACTURER AND REFINER. Reference.—Professor Miller, King's College, London.

NOUVELLE MONTAGNE COMPANY.—THE ANNUAL GENERAL MEETING of shareholders will be HELD on MONDAY, the 20th April next, at the offices of the company, at Engis, near Liege, at Half-past Eleven A.M. VICTOR SIMON, Le Directeur Generale de la Societe. Verviers, le 4 Mars, 1863.

THE NORTH POOL MINING COMPANY.—The following circular has been issued to the shareholders:—

TO THE SHAREHOLDERS IN THE NORTH POOL MINING COMPANY. I beg to inform you that a GENERAL MEETING of shareholders in the above company will be HELD, at these offices, on MONDAY, the 23rd day of March inst., at One o'clock precisely, when the favour of your attendance is requested. Important resolutions as regard the future conduct and working of the company's property will be submitted, discussed, and, I trust, unanimously adopted. I am, Sir, yours faithfully, 13, Cornhill, London, E.C., March 11, 1863. J. W. WATSON, Sec.

THE DIRECTORS of the ST. JUST UNITED TIN AND COPPER MINING COMPANY (LIMITED), having observed in the Mining Journal of the 28th ult. an advertisement of a prospectus of a mining company, bearing an almost identical title with that of their own, with the same name, officers, executive officers at the mine, &c., think it proper to NOTIFY that they, the directors of the St. Just United Tin and Copper Mining Company (Limited), have NO CONNECTION whatsoever, DIRECTLY or INDIRECTLY, with the COMPANY ADVERTISING UNDER THE NAME of the ST. JUST CONSOLS MINING COMPANY (LIMITED). By order of the Board, THOS. COOPER SMITH. 5, Warrford-court, March 4, 1863.

GREAT NORTHERN COPPER MINING COMPANY
OF SOUTH AUSTRALIA (LIMITED).—In pursuance of a resolution passed at a meeting of the shareholders in this undertaking, held on Thursday, the 5th inst., the committee of investigation have taken counsel's opinion, which is to the effect that the proceedings of the Chairman at the general meeting, held on the same day, were irregular, and the committee, in consequence, formally protested against the poll announced to take place on Monday, the 9th inst. The dissenting proprietors abstained from voting almost to a man.

It is in contemplation to convene an early meeting of the shareholders, to explain to them fully the past and present position of the directors and manager with regard to the shares of the company, and to suggest certain alterations in the management thereof. And to this end the proprietors are invited to send their names, addresses, and the number of shares they hold, to the committee of investigation, addressed to Mr. Wm. J. White, public accountant, Moira Chambers, 17, Ironmonger-lane, London, E.C.

FORTUNA COMPANY (LIMITED).
Notice is hereby given that, in conformity with the Deed of Settlement, the HALF-YEARLY GENERAL MEETING of the shareholders in this company will be held at the company's offices on THURSDAY, the 26th inst., at Two o'clock P.M.

To receive the accounts and balance-sheet, with reports from the directors, auditors, and superintendent, for the year ending December 31, 1862.
To elect two directors in the place of James Crosby and Richard Taylor, Esqs., who go out of office by rotation, but who are eligible, and offer themselves for re-election.

To appoint two auditors for the ensuing year—James Thomas Dorington and William Cox, M.P., Esqs., offer themselves for re-election.
And for general business, as authorised by the Deed of Settlement.

At a MEETING of the directors held this day it was resolved—
"That a DIVIDEND of THREE SHILLINGS AND FOUR PENCE PER SHARE be declared, PAYABLE on SATURDAY, the 28th inst., and that the transfer-books be closed for such dividend on the 16th, and re-opened on the 30th inst."

By order of the Board, J. B. COLOGAN, Sec.
5, Queen-street-place, Upper Thames-street, London, March 12, 1863.

LIANES LEAD MINING COMPANY.
Notice is hereby given that, in conformity with the Deed of Settlement, the HALF-YEARLY GENERAL MEETING of the shareholders in this company will be held at the company's offices, on THURSDAY, the 26th inst., at One o'clock.

To receive the accounts and balance-sheet, with reports from the directors and auditors, for the half-year ending December 31, 1862.
To elect three directors in the place of James Crosby, William Cox, M.P., and William Loftus Lowndes, Esqs., who go out of office by rotation, but who are eligible, and offer themselves for re-election.

To appoint two auditors for the ensuing year—Thomas Coxhead and F. J. Bramwell, Esqs., are eligible, and again offer themselves for re-election.
And for general business, as authorised by the Deed of Settlement.

At a MEETING of directors held this day it was resolved—
"That a DIVIDEND of FIVE SHILLINGS PER SHARE be declared on the PAID-UP SHARES of the company, PAYABLE on SATURDAY, the 28th inst., and that the transfer-books be closed for such dividends on the 16th, and re-opened on the 30th inst."

By order of the Board, J. B. COLOGAN, Sec.
5, Queen-street-place, Upper Thames-street, London, March 12, 1863.

MONTES AUREOS BRAZILIAN GOLD MINING COMPANY (LIMITED).—Notice is hereby given, that an EXTRAORDINARY GENERAL MEETING of shareholders will be held at the office of the company, No. 9, Broad-street-buildings, in the City of London, on Tuesday, the 24th of March, at Three o'clock precisely, to consider, and, if approved, to confirm, the following special resolution of the shareholders held on the 24th of February—

"That the Articles of Association of the company be amended, by repealing the powers given to the Board of Directors, under Articles 159 to 162 inclusive, to purchase shares for the company."
By order of the Board, JUSTINIAN FELL, Sec.

CONNORREE MINING COMPANY (LIMITED).
At an ORDINARY GENERAL MEETING of the Connorree Mining Company (Limited), held this day at their office, 46, Dame-street, Dublin,
JOHN FRANCIS WALLER, Esq., LL.D., in the chair,

The following resolutions were passed:—
Proposed by the CHAIRMAN, seconded by EDWARD POTTELL, Esq., and resolved:—
That the report and statement of accounts now read be received and adopted, and that the same be printed for distribution amongst the shareholders.

The Chairman having been moved from the chair, and John Pottrell, Esq., called thereto, it was
Proposed by JAMES M. BURKE, Esq., seconded by JOHN D'ARCY, Esq., and resolved:—
That the best thanks of this meeting be given to the directors for their attention to the interests of the company, and to the Chairman for his very proper conduct in the chair this day.

F. W. GREENE, Sec.
46, Dame-street, Dublin, March 12, 1863.

THE EAST AND WEST DOLBEIN SLATE QUARRY COMPANY (LIMITED), CARNARVONSHIRE.
OFFICES,—61, PRINCESS STREET, MANCHESTER.
Prospectuses, &c., may be had on application.
H. VAUGHAN, Sec.

THE FRON LEAD MINING COMPANY (LIMITED), FLINTSHIRE.
Specimens of ore may be seen, and prospectuses and forms of application for shares obtained, at the offices, 61, Princess-street, Manchester.
H. VAUGHAN, Sec.

THE POWELL UNITED SILVER-LEAD MINING COMPANY (LIMITED), CARDIGANSHIRE.
Specimens of the ore may be seen at the offices, 61, Princess-street, Manchester, where also prospectuses and forms of application for shares can be obtained.
A. B. SPRIGO, Sec.

THE BROADWAY AND TYNTWLL COAL AND CANNEL COMPANY (LIMITED).
To be registered under the Joint-Stock Companies Act, by which the liability of shareholders is limited to the amount they each subscribe for.
Capital £30,000, in 15,000 shares of £2 each. Deposit on application, 5s. per share, and 10s. on allotment.

Should any of the shares applied for not be allotted, the deposit will be returned in full.
To be chosen by the shareholders at their first meeting.
BANKERS—Union Bank (Limited), Manchester; North and South Wales Bank, Mold.
SOLICITORS—Francis Marriott, Esq., Norfolk-street, Manchester.

SECRETARIES (pro tem.)—Messrs. Vaughan and Sprigo.
TEMPORARY OFFICES,—61, PRINCESS STREET, MANCHESTER.
Where prospectuses and forms of application can be had.

TREGURTHA DOWNS AND OWEN VEAN CONSOLS MINING COMPANY (LIMITED), NEAR MARAZION, CORNWALL.
Capital, £40,000, in 16,000 shares, of £2 10s. each.
Deposit, 5s. per share on application, and 10s. on allotment.

BANKERS.—Union Bank of London, Princes-street.
Messrs. Vivian, Grylls, Kendall, and Co. Helston.
Messrs. Bontho, Sons, and Co., Penzance.

"This property is admitted on all hands to be unsurpassed in the county."—Mining Journal, Jan. 7, 1863.
Prospectuses, with full particulars, maps, reports, &c., may be had of Messrs. DUNFORD and RANKEN, 9, Broad-street-buildings, London, and of the provincial brokers, through whom applications for terms may be made in the usual form.

SOUTH PARYS COPPER MINING COMPANY (LIMITED), GOOD INVESTMENT.
See prospectus, reports, and opinions of the press of the South Parys Mining Company (Limited), formed for working 116 acres of the great Parys Mine, in the Isle of Anglesey. The adjoining mine has paid in dividends an average of £20,000 per annum for many years; and the South Parys sett would have been worked long since, but during the lifetime of the late proprietor a mining lease could not be obtained.

Apply to the provisional secretary, Mr. F. W. HOWES, at the offices, 28, Cornhill, E.C., where prospectuses, reports, and opinions of the press can be obtained.

ST. JUST CONSOLS MINING COMPANY (LIMITED), IN THE PARISH OF ST. JUST, NEAR PENZANCE, IN THE COUNTY OF CORNWALL.
Incorporated under the Joint-Stock Companies Act, 1862.
Capital £60,000, in 6000 shares of £1 each. Deposit on application 5s., and 5s. on allotment. No further calls to be made for twelve months.

DIRECTORS.—EDWARD W. BURLS, Esq., the Villas, Eith.
HENRY L. PHILLIPS, Esq., 8, London-street, Fenchurch-street, London.
DAVID GRIMMETT, Esq., 2, King's-row, Walworth, London.
JOHN WARD, Esq. (firm of Ward Brothers), 66, Bartholomew-close, and Islington, London.

WILLIAM C. PAUL, Esq., 56, Queen's-road, Baywater, London.
(With power to add to their number).
BANKERS—Robartes, Lubbock, and Co., 15, Lombard-street, London; Batten, Carne, and Marrack, Penzance, Cornwall.
MANAGING AGENT—Capt. John Carthew.
PROMOTER—Mr. William Angwin.

AUDITOR—Charles Warwick, Esq., 25, Bucklersbury, London, E.C.
SECRETARY—Mr. Thomas Carthew.
OFFICES,—4, BARGE YARD, BUCKLERSBURY, E.C.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN RE EAST ALFRED CONSOLS MINE.
TO BE SOLD, pursuant to an Order made in a Cause Painter v. Barnett and Others, dated the 10th day of January last, BY PUBLIC AUCTION, at the Registrar's office, Truro, on Wednesday, the 26th day of March inst., at Twelve o'clock at noon.

40 (4096th) SHARES of the defendant Thomas Barnett.
40 (4096th) SHARES of the defendant John Hooper Harper; and
1 (4096th) SHARE of the defendant William Youiten.
Of and in the said MINE.

HENRY SEWELL STOKES, Solicitor, Truro
(Agent for Roscorla and Davies, Plaintiff's Solicitors, Penzance).
Dated Registrar's Office, Truro, March 12, 1863.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN RE ALFRED CONSOLS MINE.
TO BE SOLD, pursuant to an Order made in a Cause Noell v. Flood and Others, dated the 6th day of February last, BY PUBLIC AUCTION, at the Registrar's Office, Truro, on Wednesday, the 26th day of March inst., at Twelve o'clock at noon.

5 (4093d) SHARES of the defendant John D. Flood.
3 (4093d) SHARES of the defendant Henry Frederick Helsterman
9 (4093d) SHARES of the defendant William Birkmyre.
5 (4093d) SHARES of the defendant John Metcalfe; and
5 (4093d) SHARES of the defendant Thomas Lee.
Of and in the said MINE.

HENRY SEWELL STOKES, Solicitor, Truro
(Agent for Roscorla and Davies, Plaintiff's Solicitors, Penzance).
Dated Registrar's Office, Truro, March 12, 1863.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN THE MATTER OF THE COMPANIES ACT, 1862, and of the WHELAN ANNA MINING COMPANY.—Notice is hereby given, that a PETITION for the WINDING-UP of the ABOVE-NAMED COMPANY by the Court, was on the 7th day of March inst., presented to the Vice-Warden of the Stannaries by Hugh Phillips, a contributory of the said company, and that the said petition is directed to be heard before the Vice-Warden, at the Registrar's office, Truro, on Monday, the 23rd day of March inst., at Twelve o'clock at noon.

Any contributory or creditor of the company may appear at the hearing and oppose the same, provided he has given at least two clear days' notice to the petitioner, his solicitor, or agent, of his intention to do so, such notice to be forthwith forwarded to F. P. Smith, Esq., secretary of the Vice-Warden, Truro. Every such contributory or creditor is entitled to a copy of the petition and affidavit verifying the same, from the petitioner or his solicitor, within 24 hours after requiring the same, on payment of the regulated charge per folio.

Affidavits intended to be used at the hearing, in opposition to the said petition, must be filed at the Registrar's office, Truro, on or before Friday, the 20th day of March inst., and notice thereof must at the same time be given to the petitioner, his solicitor or agent.
S. T. G. DOWNING, Redruth
(Solicitor of the Petitioner).
J. ROBERTS, Truro
(Agent of the said Solicitor).

Dated Truro, March 9, 1863.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN THE MATTER OF THE COMPANIES ACT, 1862, and of the STENCOOSE AND MAWLA UNITED MINING COMPANY.—Notice is hereby given, that ALL CREDITORS of the ABOVE-NAMED COMPANY are REQUIRED, on or before the 28th day of March inst., to SEND IN THEIR NAMES AND ADDRESSES, and the AMOUNTS AND PARTICULARS of THEIR SEVERAL CLAIMS on the said company, to William Mitchell, Esq., the Registrar of the said Court at Truro. —Dated Registrar's Office, Truro, March 9, 1863.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Devon.

IN THE MATTER OF THE COMPANIES ACT, 1862, and of the DEVON GREAT ELIZABETH MINING COMPANY.—Notice is hereby given, that ALL CREDITORS of the ABOVE-NAMED COMPANY are REQUIRED, on or before the 31st day of March inst., to SEND IN THEIR NAMES AND ADDRESSES, and the AMOUNTS AND PARTICULARS of their SEVERAL CLAIMS on the said company, to William Mitchell, Esq., the Registrar of the said Court at Truro. —Dated Registrar's Office, Truro, March 12, 1863.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Devon.

IN THE MATTER OF THE COMPANIES ACT, 1862, and of the DUKE MINING COMPANY.—Notice is hereby given, that ALL CREDITORS of the ABOVE-NAMED COMPANY are REQUIRED, on or before the 31st day of March inst., to SEND IN THEIR NAMES AND ADDRESSES, and the AMOUNTS AND PARTICULARS of their SEVERAL CLAIMS on the said company, to William Mitchell, Esq., the Registrar of the said Court at Truro. —Dated Registrar's Office, Truro, March 12, 1863.

In Chancery.

PURSUANT to a Decree of the High Court of Chancery, made in a Cause Hardy against Moore, the CREDITORS and also the INCUMBRANCERS on the REAL ESTATE of EDWARD HARDY, formerly of HUASCO, in the state of CHILLI, in SOUTH AMERICA, but late of FAIRLAWN, in the township of SHARROW, and parish of HIRON, in the county of YORK, Esq., who died in or about the month of November, 1862, are, by their solicitors, on or before the 9th day of June, 1863, to COME IN and PROVE THEIR DEBTS at the Chambers of the Master of the Rolls, in the Rolls-yard, Chancery-lane, Middlesex, or in default thereof they will be precluded from claiming the benefit of the said Decree.

Friday, the 19th day of June, 1863, at Twelve o'clock at noon, at the said chambers, is appointed for hearing and adjudicating upon the claims.
Dated this 6th day of March, 1863. GEO. WHITING, Chief Clerk.

In Chancery.

THE VICE-CHANCELLOR WOOD AT CHAMBERS.
IN THE MATTER OF THE JOINT-STOCK COMPANIES WINDING-UP ACTS, 1848 and 1849, and of the JOINT-STOCK COMPANIES WINDING-UP AMENDMENT ACT, 1857, and of the SOUTH LADY BERTHA COPPER MINING COMPANY.—By direction of the Vice-Chancellor Sir William Page Wood, the Judge to whose Court this matter is attached, notice is hereby given that the said Judge will PROCEED on Thursday, the 19th day of March, 1863, at Twelve o'clock at noon precisely, at his chambers, No. 11, New-square, Lincoln's-inn, London, to SETTLE the LIST of CONTRIBUTORIES of this company, and that after such list shall have been settled no party affected thereby will be allowed to dispute the same without leave of the High Court of Chancery first obtained.

HENRY LEMAN, Chief Clerk.
R. P. HARDING, 5, Serle-street, Lincoln's-inn, and 3, Bank-buildings, City, Official Manager.
W. J. BARRETT, 8, Bell-yard, Doctor's-commons, Solicitor.
Dated this 5th day of March, 1863.

CORNISH PUMPING ENGINE.
MESSRS. FULLER AND HORSEY are instructed to SELL, BY PRIVATE CONTRACT, a very powerful CORNISH PUMPING ENGINE, made by Harvey and Co., the celebrated engineers, of Hayle, Cornwall, in 1854, for the old Wheal Vor Mine, situated about seven miles from the shipping port of Hayle. The diameter of the cylinder is 100 in., with 11 ft. stroke, equal beam, making on the average 54 strokes per minute. The quantity of water raised by each stroke is 16,266 gallons, or nearly 70,000 gallons in the twelve hours.

For further particulars, apply to Messrs. FULLER and HORSEY, Billiter-street, London.

ST. HELEN'S, LANCASHIRE.
TO BE LET, ON LEASE, the EXTENSIVE MANUFACTURING PREMISES known as the RAVENHEAD COPPER SMELTING WORKS, situated at ST. HELEN'S, with a wharf on the canal, and a branch of the St. Helen's Railway running through the property.

The entire site is about 20 acres, of which about five acres are occupied by the works, the remainder being arable and pasture land.
The buildings comprise a series of very substantially erected, light, and lofty ground floor factories, arranged for the purposes of copper and silver smelting works, but they will be available for many other large manufacturing establishments, as they possess the advantage of direct communication by rail or water carriage with all parts of the kingdom.

Coals can be obtained from pits in the neighbourhood at an almost nominal price, and labour is cheap and abundant.
For particulars, apply to Messrs. FULLER and HORSEY, 13, Billiter-street, London, E.C., and Messrs. HARRISON and PINCE, 2, Gray's Inn, London.

NORTHUMBERLAND—KNARSDALE MANOR.
TO BE LET, the MANOR of KNARSDALE, containing 15,000 acres, the property of John Hope Wallace, Esq., of Featherstone Castle. According to a recent exploration and report, by an experienced worker, the manor contains copper ore, lead ore, iron ore (in various forms), ironstone—viz., nodules (argillaceous carbonate), blackband (containing, by Prof. Richardson's, of Newcastle, analyses, 50-63 per cent. of iron), barytes, limestone, and common clay, &c. The manor adjoins on the south the lead-producing district of Alston Moor.

The Alston branch on the Newcastle and Carlisle section of the North-Eastern Railway runs through the manor, with a central station at Slaggyford.
Mr. J. Bywater, Burnstone, KnarSDale, Alston, will show the manor. A plan of the manor may be seen, and any information obtained, on application to Mr. JOHN CLARE, steward's office, Featherstone Castle, Haltwhistle, Northumberland.
Featherstone Castle, February 4, 1863.

TAVY CONSOLS, ABOUT THREE MILES FROM TAVISTOCK.
MR. JOHN VOSPER WILL SELL, BY AUCTION, on Thursday, the 19th March inst., the whole of the MATERIALS on TAVY CONSOLS, consisting of—

A WATER-WHEEL, 40 ft. high, 4½ ft. abrest, with iron axle and sockets; ONE ditto, 30 ft. high, 2½ ft. abrest, with iron axle and sockets; ONE ditto, 14 ft. high, 1½ ft. abrest, with wrought-iron axle; ONE ditto, 9 ft. high, 10 in. abrest.
Stamps with 8 heads, arsenic mill (complete), an excellent grimmer, drawing machine (complete), balance, shaft, and angle bobs, with brasses; 8 arm capstan, 80 fms. 6 in. capstan rope, 40 ft. abrest, with shieves, poppet head and pulleys.
10 fms. drawing 6 in. lift. 90 fms. 3 in. rods and pulleys.
24 fms. 8 in. plunger ditto. 90 fms. wood rods, with strapping plates, &c., complete.
32 fms. 10 in. ditto. 100 fms. wood launders.
24 fms. 10 in. ditto, with 11 in. pole. 90 fms. wood and iron bar ladders.
8 9 ft. 7 and 8 in. pumps. 8 iron tram wagons.
120 fms. ½ in. chain.
400 fms. railway iron.

Several tons of new and old iron, about 5 cwt. of gad and boiler steel, screw stocks, taps and plates from ½ in. to 1½ in., anvil, vice, 36 in. smith's bellows, lot of smiths and miners' tools, lifting jack, 3 beams, scales and weights, 2 circular bidders, 4 hand bidders, 2 jiggling machines, wheelbarrows and handbarrows, 5 wood sheds, large tin chest, 2 tin frames, and a great variety of useful materials in general use in mines.

For viewing, application to be made to Capt. Goss, on the mine; and for further particulars, to Capt. JOSEPH RICHARDS, Lamerton; or to the Auctioneer, Tavistock.
Refreshments on the table at Twelve o'clock, and the sale to commence at One, Dated Higher Market-street, Tavistock, March 2, 1863.

COUNTY OF LANARK.
DUNDYVAN IRONWORKS AND OTHER PROPERTIES
FOR SALE.—There will be exposed to public sale, within the Faculty Hall, Glasgow, on Wednesday, the 18th day of March next, at Two o'clock afternoon (unless previously disposed of by private bargain),

Lot 1.—The DUNDYVAN PIG and BAR IRONWORKS, situated near Coatbridge, in the county of Lanark, comprising—
1.—The PIG IRONWORKS, consisting of EIGHT BLAST FURNACES, TWO BLAST ENGINES, MACHINERY for FILLING, RAILWAYS, WEIGHING MACHINES, CLAY MILL, and all the usual working conveniences, with an EXTENSIVE FOUNDRY, MECHANICS' SHOPS, STEAM ENGINES, and FIXED MACHINERY, counting-house, warehouse, stables, &c.

2.—The BAR IRONWORKS, consisting of FORTY-FOUR PUDDLING FURNACES, with a SHINGLING MACHINE; a helve, and a STEAM HAMMER, with STEAM ENGINES and FIXED MACHINERY, and THREE TRAINS of ROLLS for making puddle and other unfinished bars. Also, FIVE FINISHING MILLS, consisting of THREE BAR MILLS and TWO PLATE MILLS, driven by STEAM ENGINES and suitable machinery, with TWELVE HEATING FURNACES, saws, shears, and other usual fixed apparatus; also, MECHANICS' SHOPS, TURNING LATHES, BUILDINGS, SHEDS, RAILWAYS, and all usual working conveniences, the whole being capable of turning out 350 tons of finished iron weekly, consisting of plates, rails, and bars in great variety.

3.—ONE HUNDRED AND FIFTY-FOUR WORKMEN'S DWELLINGS, known by the names of "Long Row," "English Square," and "Stone Row."
4.—The LANDS of DYKE, with F.A.M. BUILDINGS, STEAM ENGINE, THRESHING MILL, RAILWAY, &c., thereon.

The above subjects extend to about 35 acres imperial, and the MINERALS therein will be included, in so far as belonging to the exposer, with the MACHINERY, FITTINGS, and FIXED PLANT, at DUNDYVAN PIT.

5.—The MINERALS held in lease, consisting of DRUMPELLER, SOUTHERHOUSE, and DALZIEL COAL, and WHIFLAT and HOLEHILL IRONSTONE, with the whole MACHINERY, FITTINGS, RAILWAYS, and FIXED PLANT of every kind attached thereto.

The purchaser of this lot will also be entitled to a lease, on favourable terms, of the valuable ironstone in the estate of Arden, extending to 1100 acres, or thereby, and to the option of taking at a valuation the moveable stock and utensils connected with the mines and ironworks, consisting generally of locomotive engines, horses, wagons, carts, hurries, canal scows, &c.; and also the farm leases of Whiflat and Souterhouse Farms, including implements and utensils, all as per inventories.

Lot 2.—The LANDS of DUNDYVAN, extending to about 47 acres imperial, or thereby, with the BUILDINGS erected thereon, consisting of three substantial houses, known as Dundyvan Cottage, Orenuk Cottage, and Muirend Cottage, a PROVISION STORE and SCHOON, BUILDINGS, together with the MINERALS in the lands, in so far as belonging to the exposer.

Lots 1 and 2 will, in the first instance, be put up as one subject, at the upset price of £283,000; if not sold together, Lot 1 will then be exposed separately, at the upset price of £58,000; and if sold separately, Lot 2 will thereafter be exposed at the upset price of £2000.

Lot 3.—The MINERALS in the LANDS of CUPARHEAD (about 21 imperial acres in extent). These are believed to contain, entire, the whole seams known in the district. The exposer has a lease of the surface of the lands, which, with the land-lord's consent, may be assigned to the purchaser of the minerals. Upset price, £2500.

Lot 4.—The ONE HUNDRED AND TWENTY-EIGHT WORKMEN'S DWELLINGS situated in Buchanan-street and Pocker-row. Upset price, £4000.
For further particulars, apply to Messrs. ARKEN and MACKENZIE, accountants, Glasgow; Messrs. MACKENZIE and MOORE, mining engineers there; Messrs. MELVILLE and LINDEAY, W.S., Edinburgh; Messrs. MONCRIEFF, PATTERSON, FORBES, and BARR, writers, Glasgow; or Messrs. BANNATTYNE and KIRKWOOD, writers there; the last of whom will exhibit the titles and articles of roup.—Glasgow, January, 1863.

DINAS FIRE-BRICKS.—MESSRS. FREDERICKS AND JENNER beg to offer these well-known bricks, either at their Dinas Bridge or Kidwelly Works, and can safely recommend them as EQUAL, if not SUPERIOR, to ANY FIRE-BRICKS MANUFACTURED, having the highest testimonials from the largest copper smelters and consumers in the world.—Full particulars, with testimonials, prices, &c., can be had on application to their agent, Mr. GEORGE YOUNG, Briton Ferry, South Wales; the Dinas Bridge Brick Works, Glynceth; Kidwelly Brick Works, Kidwelly; or Messrs. EASTWOOD, Belvidere-road, London.

TO COLLIERY PROPRIETORS, CAPITALISTS, AND OTHERS.—TO BE DISPOSED OF, BY PRIVATE CONTRACT, the COAL, IRONSTONE, and OTHER MINERALS, UNDER the ESTATE of the late George Silvester, of West Bromwich, Staffordshire, consisting of about FIFTY ACRES. An adjacent colliery has worked up to less than 100 yards of the estate, the seam being very thick, and of superior quality. The Great Western Railway runs through the estate, and it is within a few hundred yards of the canal.—For further particulars, apply to Mr. GEORGE SILVESTER, West Bromwich; Mr. BASTYEN, solicitor, 22, Waterloo-street, Birmingham; Mr. A. S. SILVESTER, 51, St. Paul's-square, Birmingham; and Mr. J. B. SILVESTER, West Bromwich.

WATER WHEEL FOR SALE, 30 ft. by 3 ft., all iron, except wooden arms and lining of rim. Only been in use a few months. Also, a LEAD or COPPER ORE CRUSHER TO BE SOLD, a bargain. For further particulars, apply to A. OVERFIELD, Leek.

FOR SALE, THREE STEAM BOILERS, 60 horse power each, on the Cornish plan, with domes on, by Hick and Sons, of Bolton, working at 40 lbs. pressure, under inspection of the Manchester Association for Prevention of Explosions. TWO 50 horse ditto, TWO 40 ditto, and THREE of 30 ditto. ONE 40 in. PUMPING CONDENSING BEAM ENGINE, ONE 48 in. ditto, and ONE 45 in. DIRECT ACTING HIGH PRESSURE and CONDENSING PUMPING ENGINE, with BOILERS, &c., complete. The above articles are in good working order, and will be sold cheap, as in some instances their room is required for other purposes.—Apply to J. P. FOSTER, Queen's Chambers, Market-street, Manchester.

SALE OF BASTIER'S CHAIN PUMP PATENT.
Mr. J. U. BASTIER is DESIROUS of FINDING a PARTNER for CONTINUING the DEVELOPMENT of his ENGLISH PATENT for his CHAIN PUMP, or he is WILLING to SELL the ENTIRE or PART of HIS INTEREST therein. He proposes to grant four exclusive licenses for the full term of the patent, for England, Scotland, Ireland, and Wales respectively—

For the license for England, he demands the sum of £2000 for the unreserved transfer, or £1000 if 25 per cent. of the net profits be secured to him.
For the license for Scotland, he demands £1500 for unreserved sale, or £750 with 25 per cent. of profits.
And for the license for Ireland, he demands £1400 for unreserved sale, or £700 with 25 per cent. of profits.

Address, J. U. BASTIER, C.E., 47, Warren-street, Fitzroy-square, London.

ASSAYS AND ANALYSES OF ORES, METALS MANURES, &c., on the most moderate terms, and with the utmost accuracy. List of fees per post, on application.
JOHN LONGMAID, CITY LABORATORY AND ASSAY OFFICE, 31, THROMORTON STREET, E.C.

THE ANGLO-PRUSSIAN MINING COMPANY (LIMITED).
ISSUE OF EIGHT PER CENT. PREFERENCE SHARES.
Capital £100,000, in 20,000 shares of £5 each, divided into 14,000 preference 8 per cent. per annum A shares, and 6000 B shares.
Deposit, 10s. per share on application, and 10s. per share on allotment, making the first call of £1 per share.

No further call for at least twelve months.
Subsequent calls will not exceed 10s. per share, or be at less intervals than three months.
The deposit will be returned in full on all shares not allotted.

DIRECTORS.
Major-General YOUNGHUSBAND—CHAIRMAN.
PARKE PITTAR, Esq. (Messrs. Parke Pittar and Co.), 26, Gresham-street.
REGINALD READ, Esq., M.D., Director of the Crystal Palace Company.
WILLIAM ROBERTS, Esq., Director of the Joraham (Assam) Tea Company.
PHILIP WRIGHT, Esq., Director of the Great Barrier Land, Harbour, and Mining Company.

SOLICITORS—Messrs. Vallance and Vallance, 20, Essex-street, Strand, and George-yard, Lombard-street, London.
CONSULTING ENGINEERS—Messrs. Phillips and Dartington, Moorgate-street Chambers, Moorgate-street, London.

BANKERS—Bank of London, Threadneedle-street, E.C.
AUDITORS—Lieut. Watson, R.N., Exmouth; Charles Wescomb, Esq., Southampton, Exeter.

BOOKERS.
London Messrs. Froom Brothers, 20, Change-alley, E.C.
Leeds Messrs. Potter and Co.
Manchester Messrs. Gorton Brothers and Pooley, Newmarket Chambers.
Dublin Messrs. Smyth and Du Bedat, 11, College-green.
Exeter J. O. Harris, Esq., 24, Southdown.

SECRETARY—J. H. MURCHISON, Esq., F.G.S.
OFFICES,—117, BISHOPSGATE STREET WITHIN.
Prospectuses, forms of application for the 8 per cent. per annum preference A shares, particulars of the mines, reports and map, and all other information, can be had of the brokers, or at the offices of the company, 117, Bishopsgate-street Within.

THE MINING SHARE LIST

DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Dividends Per Share.	Last Paid.
1000	Alderley Edge (Cheshire) [L.]	0 0 0	—	—	7 18 6	0 10 0—May, 1862
4000	Bedford United (copper), Tavistock	2 6 8	—	—	13 0 0	0 2 6—Dec. 1862
2400	Bosconan (tin), St. Just	20 10 0	—	—	36 10 0	1 0 0—Mar. 1862
200	Botallack (tin, copper), St. Just	91 8 0	—	—	455 15 0	6 0 0—Nov. 1862
5000	Brandyford (tin), Cardigan [L.]	13 7 6	—	—	836 0 0	10 0 0—Jan. 1863
916	Carroll (silver-lead), Newlyn	15 5 7	—	—	2 5 0	1 5 0—Feb. 1863
1000	Carn Brea (copper, tin), Illogan	15 0 0	—	—	273 10 0	2 0 0—Feb. 1862
256	Carroll Hill (copper) Redruth	48 0 0	95	—	9 10 0	2 10 0—Sept. 1862
12000	Copper Mines of England	25 0 0	—	—	7 1/2 per cent.	—Half-yrly.
35000	Doitto ditto (stock)	100 0 0	—	—	1 per cent.	—Half-yrly.
1052	Credgagh Moor (copper), St. Cleer	8 0 0	—	—	7 12 0	0 4 0—July, 1862
1115	Craggawase and Penkell, St. Columb	—	—	—	0 10 0	0 10 0—Jan. 1862
867	Cwm Erwin (lead) Cardiganshire [L.]	7 10 0	—	—	7 18 0	0 5 0—Dec. 1862
128	Cwmystwith (lead), Cardiganshire	60 0 0	—	—	247 10 0	4 0 0—Sept. 1862
200	Darwent Mines (all-lead), Durham	300 0 0	—	—	147 0 0	5 0 0—Jan. 1863
1024	Darwin Gt. Con. (cop.), Talist. [S.E.]	1 0 0	—	—	836 0 0	10 0 0—Jan. 1863
358	Dolcoath (copper, tin), Camborne	128 17 6	—	—	701 10 0	8 0 0—Feb. 1863
12800	Drake Walls (tin, copper), Calstock	2 1 0	2 1/2	2 1/2	0 16 0	0 1 0—Feb. 1863
8000	Drynigwen (lead), Wales	12 6 0	—	—	0 17 0	0 2 6—Jan. 1863
412	East Haast (cop.), Redruth [S.E.]	29 10 0	90	80 85	106 0 0	1 0 0—Jan. 1863
6144	East Caradon (copper), St. Cleer [S.E.]	2 14 6	47 1/2	44 45	5 17 6	1 0 0—Jan. 1863
300	East Darwen (lead), Cardiganshire	32 0 0	—	—	84 10 0	1 0 0—Oct. 1862
2000	East Pool (tin, copper), Pool, Illogan	24 5 0	—	—	325 0 0	5 0 0—Feb. 1863
2000	Foxdale (lead) Isle of Man [L.]	25 0 0	—	—	—	—July, 1862
1798	Great Wheel Fort (tin), Breage	3 18 6	—	—	0 16 0	0 2 6—Mar. 1862
5908	Great Wh. Vor (tin, cop.), Helston [S.E.]	40 0 0	37 1/2	37 38	2 2 0	0 5 0—Sept. 1862
10240	Gunnels Lake (Chilite's Adit)	0 2 0	7 1/2	7 7 1/2	0 3 0	0 1 0—Mar. 1862
1024	Herodafon (id.), near Liskeard [S.E.]	8 10 0	49	47 49	21 10 0	1 15 0—Oct. 1862
1000	Hibernian Mine Company	22 6 0	—	—	9 15 0	0 15 0—Feb. 1863
400	Laburno (lead), Cardiganshire, Wales	18 15 0	—	—	359 10 0	4 0 0—Nov. 1862
9000	Marke Valley (copper), Caradon	4 10 6	8 1/2	8 1/2	2 6 0	0 2 6—Jan. 1863
1800	Minera Mining Co. [L.] (id.), Wrexham	25 0 0	—	—	107 18 0	8 0 0—Feb. 1863
610	Mount Pleasant (lead), Mold	4 0 0	—	—	18 18 0	1 7 6—Aug. 1862
5936	North Trekerby (copper), St. Agnes	1 0 0	3 1/2	—	0 6 0	0 1 0—Feb. 1863
8000	Oreodale (lead), Flintshire [S.E.]	0 8 0	—	—	0 10 0	0 2 6—Mar. 1862
640	Par Consols (cop.), St. Blazey [S.E.]	50 0 0	—	—	86 16 0	7 0 0—Nov. 1862
202	Parys Mines (copper), Anglesey [L.]	50 0 0	—	—	67 10 0	10 0 0—Jan. 1863
400	Phonix (copper and tin)	—	—	—	—	—
1123	Providence (tin), Uny Lelant [S.E.]	10 8 7	42	42 44	67 5 0	1 0 0—Feb. 1863
6000	Rosewall Hill and Ransom United	1 5 0	—	—	0 8 0	0 2 6—Sept. 1862
16	Rosemarion (lead)	50 0 0	—	—	1250 0 0	100 0 0—Quarterly
812	South Caradon (cop.), St. Cleer [S.E.]	1 5 0	415	410 420	396 0 0	5 0 0—Jan. 1863
812	South Toigues (cop.), Redruth, Cornwall	8 0 0	68	65 67 1/2	73 10 0	1 0 0—May, 1862
496	S. Wh. Frances (cop.), Illogan [S.E.]	18 9 9	95	90 95	266 6 0	1 0 0—Mar. 1863
500	South Woodley	—	—	—	0 6 0	0 6 0—June, 1862
280	Spearhead Moor (tin, copper), St. Just	31 7 6	—	—	9 15 0	1 0 0—June, 1862
910	St. Ives Consols (tin), St. Ives	8 0 0	—	—	486 0 0	10 0 0—Nov. 1862
6000	Tinctor (cop.), Pool, Illogan [S.E.]	9 0 0	19 1/2	19 20	11 18 0	0 5 0—Dec. 1862
1000	Trumpton Consols (tin), near Helston	11 10 0	—	—	11 0 0	2 0 0—Mar. 1862
4200	Vigma and Clogau (copper) [L.]	1 10 0	28	26 28	4 12 6	1 0 0—Oct. 1862
6000	West Bassett (copper), Illogan [S.E.]	1 10 0	—	—	23 11 0	0 5 0—Jan. 1863
1024	West Caradon (cop.), Liskeard [S.E.]	5 0 0	35	32 34	101 1 3	0 10 0—Oct. 1862
400	West Darnley (copper), Gwennap	8 10 0	—	—	46 0 0	1 0 0—Jan. 1863
1024	West Penryn (tin and copper)	7 10 0	—	—	0 19 0	0 3 0—May, 1862
1024	West Penryn (tin and copper)	7 10 0	—	—	0 19 0	0 3 0—May, 1862
400	Wh. Wh. Seton (cop.), Camborne [S.E.]	47 10 0	270	265 275	373 0 0	5 0 0—Feb. 1863
512	Wh. Bassett (copper), Illogan [S.E.]	6 2 6	7 1/2	7 1/2	692 10 0	1 0 0—Feb. 1863
1000	Wh. Bassett and Grylls (tin)	7 0 0	—	—	1 0 0	1 0 0—Dec. 1862
2900	Wh. Clifford Amalgamated (cop.), Gwennap	30 0 0	21	21 22	28 6 0	0 7 6—Dec. 1862
1024	Wh. Grylls (tin), Perranaruthnoe	2 4 0	35	33 34	3 2 0	1 0 0—Dec. 1862
4800	Wh. Ludecott and Wrey (lead), St. Ives	2 10 8	7 1/2	7 1/2	3 2 0	1 0 0—Jan. 1863
896	Wh. Margaret (tin), Uny Lelant [S.E.]	9 17 6	35	32 1/2	75 5 0	1 0 0—Nov. 1862
1000	Wh. Mary (tin), Lelant	98 2 6	—	—	284 5 0	4 0 0—Mar. 1862
1024	Wh. Mary Ann (id.), Menheniot [S.E.]	8 0 0	17	16 17	56 17 6	0 10 0—Dec. 1862
80	Wh. Oriel (tin), St. Just, Cornwall	70 0 0	—	—	318 8 0	7 0 0—Feb. 1863
128	Wh. Prosper (tin), Lanivet	3 0 0	—	—	0 10 0	1 0 0—June, 1862
396	Wh. Seton (tin, copper), Camborne	68 10 0	240	250 260	147 15 0	3 0 0—Feb. 1863
1040	Wh. Trelawny (all-lead), Liskeard [S.E.]	5 17 0	18	17 18	46 2 6	0 10 0—Nov. 1862

[* Dividends paid every two months. † Dividends paid every three months.]

MINES WITH DIVIDENDS IN ABEYANCE.

700	Aberdovey (silver-lead), Merioneth	1 10 0	—	—	0 10 0	0 10 0—Mar. 1859
200	Cwm Brwyno (lead), Cardiganshire	33 0 0	—	—	0 0 0	0 0 0—Apr. 1861
286	Condurow (cop.), Camborne	35 0 0	—	—	85 0 0	2 0 0—June, 1862
2450	Cook's Kitchen (copper), Illogan	17 9 9	29	26 1/2 27 1/2	1 7 0	0 7 0—May, 1862
4076	Devon and Cornwall (copper)	5 16 3	—	—	0 10 0	0 2 6—Feb. 1863
672	Ding Dong (tin), Guilva	40 18 6	—	—	16 7 6	1 10 0—Mar. 1862
940	Fovey (copper), Tynardreath	4 0 0	—	—	41 9 3	0 2 6—June, 1860
6000	Great South Toigues (tin), Redruth	14 6 0	—	—	7 18 0	0 5 0—Dec. 1861
119	Great Work (tin), Gernoe	100 0 0	—	—	221 10 0	7 0 0—Feb. 1860
6000	Kelly Bray (lead, copper), Callington	4 15 6	1	1 1 1/2	1091 0 0	5 0 0—May, 1860
160	Lavant (copper, tin), St. Just	2 10 0	—	—	14 7 11	0 7 0—Dec. 1861
20000	Mining Co. of Ireland (cop., lead, coal)	7 0 0	19 1/2	—	0 3 6	0 1 0—Sept. 1861
6000	New Birch Tor and Viffron Cons. (tin)	1 6 0	—	—	0 10 0	0 2 6—May, 1862
470	Newtownards Mining Co., Co. Down	60 0 0	—	—	6 19 6	0 10 0—Dec. 1861
6000	North Downs (copper) Redruth	2 3 4	3	2 1/2 2 3/2	0 2 0	0 2 0—Oct. 1862
1772	Pollberron (tin), St. Agnes	—	—	—	0 10 0	0 2 6—July, 1862
12900	Rosemarion Consols (copper)	3 12 6	—	—	0 13 0	0 2 6—Mar. 1860
9600	Solihull (copper), Marazion	0 17 0	—	—	0 13 0	0 2 6—Mar. 1860
9600	Tannor Con. (all-lead), Bealton [S.E.]	4 10 0	—	—	7 0 0	0 10 0—Sept. 1860
572	Trevelyan Consols (tin), St. Ives	12 10 0	—	—	8 15 0	1 0 0—Jan. 1861
1024	Wendron Consols (tin), Wendron	12 13 10	12 1/2	13 1/2 14 1/2	14 10 0	3 0 0—June, 1861
60	West Burton Hill (lead), Yorkshire	60 0 0	—	—	929 0 0	2 0 0—Mar. 1861
266	Wheel Buller (cop.), Redruth [S.E.]	5 0 0	70	63 65	2400 10 0	5 0 0—May, 1861
128	Wheel Friendship (copper), Devon	60 0 0	—	—	0 5 0	0 5 0—Feb. 1862
1024	Wheel Hearle (tin), St. Just	9 18 8	—	—	13 10 0	1 0 0—Mar. 1862
1024	Wheel Killy (tin), Uny Lelant [S.E.]	2 10 0	—	—	8 10 0	1 0 0—Apr. 1862
4295	Wheel Killy (tin), St. Agnes	19 6 0	—	—	0 18 0	0 2 0—July, 1860
6000	Wicklow (copper) [L.]	5 0 0	—	—	43 17 6	2 0 0—Oct. 1861

FOREIGN MINES.

2464	Burra Burra (cop.), South Australia	5 0 0	—	—	300 0 0	5 0 0—Oct. 1862
6000	Central American (silver) [L.]	5 0 0	—	—	2 2 0	0 14 0—Oct. 1862
12000	Cobre Copper Co. (cop.), Cuba [S.E.]	40 0 0	23	—	98 12 0	1 0 0—Jan. 1862
10000	Copake Mining Company, Chili [S.E.]	16 0 0	—	—	6 18 0	0 10 0—Nov. 1862
16000	East Indian Coal, Galesia [L.]	10 0 0	—	—	7 1/2 per cent.	—Yearly
70000	English and Australian [S.E.]	5 0 0	—	—	1 7 6	0 2 6—Feb. 1862
25000	Fortuna (lead), Spain [L.] [S.E.]	5 1/2	5 1/2	—	0 10 0	0 2 6—Mar. 1863
25000	G. M. Mining Assoc., Nova Scotia [S.E.]	120 0 0	22	—	19 6 0	1 0 0—Mar. 1863
60000	Kapunda Mining Co., Australia [S.E.]	1 0 0	1 1/2	1 1/2	0 10 0	0 10 0—June, 1862
15000	Linares (id.), Pozo Ancho, Spain [S.E.]	3 0 0	—	—	9 1 2	0 5 0—Mar. 1863
10000	Lusitania (of Portugal) [S.E.]	2 0 0	—	—	0 19 0	0 1 0—Feb. 1863
103815	Mariguata and New Granada [S.E.]	1 0 0	—	—	0 9 6	0 1 6—July, 1859
100000	Port Phillip (gold), Clunes [S.E.]	1 0 0	1 1/2	—	0 8 6	0 2 6—Jan. 1863
11000	St. John del Rey [L.] Brazil [S.E.]	15 0 0	—	—	54 15 0	4 0 0—Dec. 1862
48174	Unit. Mexican [S.E.]	25 0 0	—	—	2 1 6	0 5 0—Oct. 1862
30000	West Canada Mining Company [L.]	1 0 0	—	—	0 2 0	0 2 0—Nov. 1862

FOREIGN MINES WITH DIVIDENDS IN ABEYANCE.

10000	Altan and Quenangan (id.), [L.] [S.E.]	4 10 0	—	—	4 5 0	0 15 0—Nov. 1853
10000	Gt. Barrier Lead, Min. & Co., N. Ze. [L.] [S.E.]	4 10 0	—	—	15 per cent.	—May, 1859
10000	Pontbagnat (all-lead), France [S.E.]	20 0 0	—	—	1 0 0	1 0 0—June, 1855

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Bus. done.	Last Call.
20000	Australian (copper), South Australia [S.E.]	7 6 0	—	—	Sept. 1868
20000	Bearis (tin) [L. £1]	0 10 0	—	—	Oct. 1862
75000	Ben Accord, South Australia (copper) [L.] [S.E.]	1 0 0	—	—	Jan. 1862
15000	Cape Copper Mining Company [L.] [S.E.]	2 10 0	3	2½ 2¾	Jan. 1862
25000	Capula (silver), Mexico [L. £2] [S.E.]	0 10 0	—	¾ ¾	Jan. 1862
17000	Central Italian (copper) [7000 £2 paid]	0 6 0	—	—	Jan. 1859
60000	Clarendon Consols (copper), Jamaica [S.E.]	1 2 6	—	—	July, 1861
10000	Copago Smelting [L.], Chili	10 0 0	—	—	Fully paid.
100000	Don Pedro North Del Rey (gold), Brazil [L. £1]	0 10 0	—	¾ ¾	Aug. 1862
75000	Dun Mountain (copper), New Zealand [L.] [S.E.]	1 0 0	—	¾ ¾	Fully paid.
25000	East del Rey, Brazil [L. £1]	1 0 0	1½	—	Sept. 1861
30000	East Kongberg Native Silver Mining Co. of Norway [L. £2]	1 7 6	—	—	Mar. 1862
20000	Elbe Colliery Company [L.]	1 0 0	—	1	Fully paid.
80000	Ellerlie and Bardowie, Jamaica	0 18 0	—	—	July, 1859
40000	English and Canadian Mining Company [L.]	5 0 0	—	—	Fully paid.
80000	Fortune (copper), West Australia [L.]	2 0 0	—	—	Fully paid.
80000	Great Northern (copper), South Australia [L. £2] [S.E.]	1 10 0	½	—	June, 1862
24000	Hindostan (copper), Bengal [L. £2]	3 0 0	—	—	Feb. 1863
50000	Hop Silver-Lead and Copper Mining Co. [L.], Jamaica	25 0 0	—	—	Fully paid.
50000	Imperial Thessalian (lead, &c.), Thessaly [L. £2]	0 10 0	—	—	June, 1860
10000	Karbita Colliery Company [L.]	1 0 0	—	—	Fully paid.
30000	Lagunazo (sulphur, copper), Portugal [L.]	1 0 0	—	—	Fully paid.
100000	Montes Aures (gold), Brazil [L.] [S.E.]	2 0 0	3	2½ 3	Fully paid.
2000	New Burra Burra (Australia)	5 0 0	—	—	Aug. 1862
60000	New Granada (gold), South America [S.E.]	1 0 0	—	—	Fully paid.
10000	New Grand Duchy of Baden (silver-lead), near Freiberg	1 0 0	—	—	Nov. 1858
60000	North Rhine Copper of South Australia [L. £1] [S.E.]	0 17 6	¾	—	—
50000	Nova Scotia (lead and gold) [L. £2]	1 0 0	—	—	Nov. 1862
15000	Pachuca Silver Mining Company, Mexico [L. £1]	0 15 0	—	—	April, 1862
17000	Quebrada (copper), Venezuela [L. £10]	2 10 0	—	—	Dec. 1862
60000	Santa Barbara (gold), Brazil [L.] [S.E.]	0 10 0	—	¾ ¾	Mar. 1862
120000	Scottish Australian Mining Company [L. £1]	0 12 6	1	¾ 1	—
15000	South Europe Mining Company, Spain [L.]	3 0 0	—	—	May, 1860
80000	St. John's United (copper, lead), Newfoundland [L.]	1 0 0	—	—	Fully paid.
12000	Teplitz Colliery Co. [L. £5]	5 0 0	—	—	—
10000	Vancouver (coal) [L. £10]	5 0 0	—	—	—
45000	Vicior Emanuel, Italy [L.]	1 0 0	—	—	Fully paid.
10000	Western Africa Malachite (copper) [L.]	110 0 0	—	—	Oct. 1869
12000	Wharf Elton, South Australia [L.]	5 0 0	—	—	Fully paid.
24000	Woolf Jamaica (copper)	1 0 0	—	—	Fully paid.
80000	Working (copper), South Australia [L.] [S.E.]	1 0 0	—	—	Fully paid.
45000	Yudnamutana (copper), South Australia [L.] [S.E.]	3 0 0	4¾	3¾ 4¾	Fully paid.